

Meeting called to order by the Mayor Invocation and Pledge of Allegiance

1. Consent Agenda:

- a. Approval of Minutes July 3, 2018 Regular Session
- b. Tax Releases
- c. Tax Collector Year End Report
- d. 2017 Outstanding Tax Listing
- e. Approve Resolution of Commendation and Appreciation to Captain Steve McGilvray for his service to the City of Graham and Awarding him his Badge and Service Sidearm
- f. Appoint Allene Massengill to the Historical Museum Advisory Board with term to expire June 30, 2019
- g. Approve request from Jennifer Talley to close the 100 block of East Elm Street on Friday, September 14, 2018 from 6:00 p.m. until 5:00 p.m. on Sunday, September 16, 2018 for the Downtown Graham DockDogs Festival, pending receipt of a certificate of liability insurance prior to the event
- h. Approve request from The Exchange Club's Family Center in Alamance County to close the Ward Parking Lot located at the corner of Harden Street and Maple Street from 8:00 a.m. 12:00 p.m. on Saturday, August 25, 2018 for a "Stuff for Success" event, pending receipt of a certificate of liability insurance prior to the event
- i. Approve Resolution amending contact information for the North Carolina Alcoholic Beverage Control Commission
- j. Accept the offer of \$5,000 from Walt C. Zamora for approximately 0.23 acres of real property adjacent to 516 W. Elm Street and authorize the City Manager, City Attorney and City Clerk to effectuate the sale subject to the conditions as set forth in Section 4 of the Offer to Purchase and Contract submitted by Walt C. Zamora
- k. Approve Ordinance Declaring a 40 MPH Speed Zone on Rogers Road (SR 2309), a Point 0.05 Mile South Of Lacy Holt Road (SR 2317) and Moore Street (SR 2433), and Concur with Repealing State Ordinances 1000823 and 1000825
- l. Approve Resolution for Continuation of the Dedicated Traffic Enforcement Unit with the Governor's Highway Safety Program
- m. Approve Resolution authorizing the process to begin closure of an unconstructed portion of East Park Street
- n. Petition for Voluntary Non-Contiguous Annexation for a portion (69.781 acres) of a parcel on Governor Scott Farm Road GPIN#9803085096 (AN1802):
 - i. Approve Resolution Requesting City Clerk to Investigate Sufficiency
 - ii. Approve Resolution Fixing Date of Public Hearing on Question of Annexation

2. Old Business:

- a. Second Reading: Temporary Outdoor Sales Ordinance
- b. <u>Public Hearing</u>: Temporary Outdoor Sales (AM1801). Application by Chelsea Dickey to amend the Development Ordinance to regulate temporary sales in the Code of Ordinances
- c. <u>Public Hearing</u>: Duplex in High Density (AM1804). Request by Kristen Foust to amend the City of Graham Development Ordinance, Section 10.135 Table of Permitted Uses, to permit duplex dwellings as use by right in R-7 zoning district

3. Requests & Petitions from Citizens:

a. Haw River Assembly – Resolution to Oppose the Proposed Mountain Valley Pipeline Southgate Extension in Alamance County

4. Recommendations from Planning Board:

- a. <u>Public Hearing</u>: Rogers Shugart (RZ1804). Request from Shugart Enterprises, LLC to rezone property located on Rogers Road from Residential Low Density R-18 to Residential High Density R-9
- b. <u>Public Hearing</u>: McAden Business (RZ1802). Request from Curt McVey to rezone property located at 204 E. McAden Street from High Density Residential (R-7) to Neighborhood Business (B-3) GPIN#8884223927
- c. Suggestion for Used Tire Ordinance

5. Boards & Commissions Annual Updates:

- a. Historic Resources Commission
- b. Historical Museum Advisory Board
- 6. Approve Resolution Authorizing the City Manager to enter into a Development Agreement with KG Plaza, LLC for the construction of a portion of the Back Creek sewer outfall.

7. Issues Not on Tonight's Agenda

CITY OF GRAHAM REGULAR SESSION TUESDAY, JULY 3, 2018 7:00 P.M.

The City Council of the City of Graham met in regular session at 7:00 p.m. on Tuesday, July 3, 2018, in the Council Chambers of the Municipal Building located at 201 South Main Street.

<u>Council Members Present:</u> <u>Also Present:</u>

Mayor Jerry Peterman

Mayor Pro Tem Lee Kimrey

Council Member Griffin McClure

Council Member Chip Turner

Council Member Melody Wiggins

Frankie Maness, City Manager

Aaron Holland, Assistant City Manager

Darcy Sperry, City Clerk

Keith Whited, City Attorney

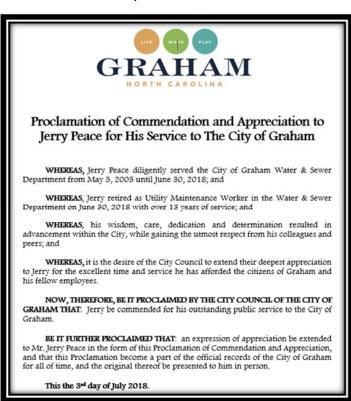
Nathan Page, Planning Director

Mayor Jerry Peterman called the meeting to order and presided at 7:00 p.m. Council Member Chip Turner gave the invocation and everyone stood to recite the Pledge of Allegiance.

Consent Agenda:

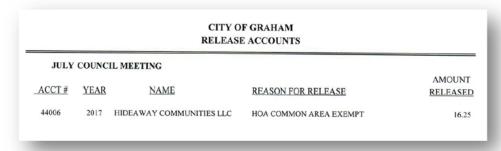
➤ Jerry Peace – Proclamation of Commendation and Appreciation for 13 years of service to the City of Graham

Mayor Peterman and City Manager Frankie Maness presented Mr. Jerry Peace with a Proclamation of Commendation and Appreciation as well as a gift from the City of Graham. Both gentlemen thanked Mr. Peace for his service to the City and in return, Mr. Peace thanked the City.



Consent Agenda:

- a. Approval of Minutes June 5, 2018 Regular Session
- b. Tax Releases



Council Member Turner made a motion to approve the Consent Agenda, seconded by Council Member Melody Wiggins. All voted in favor of the motion.

Old Business:

a. Second Reading: Temporary Outdoor Sales Ordinance

Assistant City Manager Aaron Holland explained that at last month's meeting, Council voted 3-2 for approval of this ordinance. The motion was insufficient for first reading to become law and tonight is the second reading. He further advised that the motion approved last month needs some clarification, specifically the permit fee amount and the distance requirement. He presented Council with staff recommended changes.

Council Members and staff discussed distance requirements and permit fees before Mayor Peterman opened the discussion to the floor.

The following individuals expressed concern and/or had questions with language being proposed:

Mr. Don Penny, 114 N. Main Street Graham

Mr. Chuck Talley, 808 Sideview Street Graham

Mr. Paul Harden, 16 NE Court Square Graham

Mr. Richard Shevlin, 510 Wildwood Lane Graham

Mr. Tom Boney of the Alamance News

The following individuals spoke in favor of the language being proposed:

Ms. Janee Farrar, 141 E. Harden Street Graham

Ms. Jan Searls, 526 E. Pine Street Graham

Ms. Elaine Murrin, 1213 Raspberry Run Graham

Mr. Eric Crissman, 208 Albright Avenue Graham

Council Members and staff continued a general discussion before Council Member Griffin McClure made a motion to approve the Ordinance amendment to Chapter 8 (Businesses), Article VIII of the Code of Ordinances to allow for Temporary Outdoor Sales with an annual permit fee of \$25 and a distance requirement of 50 ft. from the structure of a similar establishment with exemption for the property owner. Mayor Pro Tem Lee Kimrey seconded the motion. Ayes: Council Member McClure, Mayor Pro Tem Kimrey and Council Member Wiggins. Nays: Mayor Peterman and Council Member Turner. Due to new language in this motion, this motion will act as a first reading and is insufficient for first reading to become law. The second reading for this motion is scheduled for August 7, 2018.

b. <u>Public Hearing</u>: Temporary Outdoor Sales (AM1801). Application by Chelsea Dickey to amend the Development Ordinance to regulate temporary sales in the Code of Ordinances

Planning Director Nathan Page advised that this item was continued at last month's meeting and he once again recommended Council table this item until there is a regulation in the Code of Ordinances. Mayor Peterman opened the Public Hearing and with no comments forthcoming, he closed the Public Hearing. Council Member McClure made a motion to continue this item, seconded by Mayor Pro Tem Kimrey. All voted in favor of the motion.

c. <u>Public Hearing</u>: Fencing in Overlays (AM1802). Application by the Planning Board to clarify the appearance of fencing within the Overlay Districts

Mr. Page explained that in light of the comments received at last month's Council meeting, staff amended the proposed language, specifically section 10.441 and 10.466 (h).

Council Members briefly discussed the proposed change and whether or not vinyl coated fencing should be allowed. Mayor Peterman opened the Public Hearing.

Mr. Jim Fletcher of Highway 87 Graham asked about temporary fencing used in construction, while Mr. Jordan Conklin of 626 Johnson Avenue asked about distance requirements.

Mr. Crissman stepped forward on behalf of the Planning Board. He advised that the Planning Board's intent with this ordinance was not to dictate an architecturally like fence, but rather not to allow a chicken wire type of fence. With no further comments forthcoming, Mayor Peterman closed the Public Hearing.

Following a brief discussion between Council Members and staff, Council Member Wiggins made a motion to approve the text amendment with the alternative language: (h) fencing shall not be temporary nor constructed of exposed wire unless not visible from the right of way of Highway 87 or an abutting street. Mayor Pro Tem Kimrey seconded the motion and all voted in favor of the motion.

d. Downtown Development Coordinator Position

Mr. Maness reminded Council that the City received a contract proposal from the Co | Operative to provide economic development services through funding of a Director of Community Development position. He presented Council with five options with a staff recommendation to create a regular City position for economic development.

Council Members and staff discussed supervision, salary, benefit of in-house versus contract, potential office location and the fiscal impact to the City before Mayor Peterman opened the discussion to the floor.

The following individuals expressed concern with Council approving this request:

Mr. Larry Brooks, 1509 Stonegate Drive Graham

Mr. Harden

Mr. Boney

Mr. Talley

Ms. Jennifer Talley, 808 Sideview Street Graham

In response to the concern of some that Council Members who own property or own business in the downtown area have or may have a conflict in the future should Council approve this request, Mr. Crissman stepped forward and stated that technically, there is nothing Council could vote on that would not have a financial impact in the downtown area.

Ms. Farrar encouraged Council to approve a contract with the Co | Operative. Mr. Jason Cox of 200 North Main Street and president of the Co | Operative also encouraged Council to approve a contract with his organization.

Council Members and staff spent a great deal of time weighing the concerns citizens expressed and the needs of the City. Following this discussion, Mayor Pro Tem Kimrey made a motion to authorize the City Manager to establish a position of Downtown Development Coordinator, seconded by Council Member Wiggins. Ayes: Mayor Pro Tem Kimrey, Council Member Wiggins and Council Member McClure. Nays: Mayor Peterman and Council Member Turner. Motion Carried 3:2.

Recommendation from Planning Board:

a. <u>Public Hearing</u>: Duplex in High Density (AM1804). Request by Kristen Foust to amend the City of Graham Development Ordinance, Section 10.135 - Table of Permitted Uses, to permit duplex dwellings as use by right in R-7 zoning district

Mr. Page explained the request and advised that the applicant has requested that to postpone this item due to the applicants not being able to attend this meeting.

Mayor Peterman opened the Public Hearing and with no comments forthcoming, Council Member McClure made a motion to continue this item until next month. Council Member Wiggins seconded the motion and all voted in favor of the motion.

b. <u>Public Hearing:</u> ABC Business (RZ1803). Request by Larry Brooks to rezone property located at 603 W. Harden Street from I-1 to B-2 (GPIN 8874846840)

Mr. Page explained that this property is surrounded by commercial properties but does have access to the residential street of Graham Drive via a driveway.

This request is to rezone the whole property to B-2, to allow the current structure to come into conformity with the Development Ordinance, as well as to potentially allow for a future expansion with the zero-foot lot line requirements within B-2. The use of the property is not anticipated to change.

Following a brief discussion between Council Members and staff, Mayor Peterman opened the Public Hearing.

Mr. Brooks, Executive Director for the ABC Store, advised that this request is to bring the property into compliance. With no further comments forthcoming, Mayor Peterman closed the Public Hearing.

Council Member McClure made a motion that the application be approved, the application is consistent with The Graham 2035 Comprehensive Plan and this action is reasonable and in the public interest for the following reasons: Rezoning the site will permit the property to come into conformance with the zoning code and will allow more flexibility for future expansion. Council Member Wiggins seconded the motion and all voted in favor of the motion.

Closed Session Pursuant to the Terms of N.C.G.S. §. 143-318-11 (a) (6): to consider the performance of the City Manager and City Attorney

Mayor Peterman explained that Council would be going into closed session to review the performance of the City Manager and City Attorney.

At 9:23 p.m., Council Member Wiggins made a motion to go into Closed Session to Consider the Performance of the City Manager and City Attorney Pursuant to the Terms of N.C.G.S. §. 143-318-11 (a) (6), seconded by Council Member Turner. All voted in favor of the motion.

At 9:55 p.m., Council Members returned from Closed Session and Mayor Peterman reconvened the Regular Session meeting.

Mayor Peterman read a prepared statement for City Attorney Keith Whited – "We have been blessed this past year with the addition of Mr. Whited as our staff attorney. His skill and technical abilities make our jobs much easier and keep us out of trouble. We would like to raise Mr. Whited's salary by 3% effective July 1, 2018."

Mayor Peterman read a prepared statement for Mr. Maness – "The City of Graham has benefited immensely from the skill, work ethic and diligence of our City Manager. We as a Council thank you for all you do for us and the citizens of Graham. We would like to raise the Manager's salary by 3.1% effective July1, 2018."

Issues Not on Tonight's Agenda:

Ms. Talley stepped forward and asked that Council support an upcoming DockDogs event. A formal request will be presented at the August 7, 2018 Council meeting.

Mr. Whited advised that he will be on vacation next week.

Mr. Maness thanked Council for their support and looks forward to the years to come working for the City.

Council Member Wiggins advised that the Graham Historic Resources Commission will be presenting a full report of their actions to Council in August.

Council Member Wiggins also spoke of the renovations the Graham Historical Museum Advisory Board has actively been doing at the museum. She advised that there will be a work session at the museum on Monday, July 9th at 10:00 a.m. and invited anyone who wishes to volunteer to join them. Council Member Wiggins also stated that there are still two vacancies on this board.

Council Member McClure recognized an employee from the City's engineering firm Alley, Williams, Carmen & King for the kind act he bestowed on a Graham resident. The resident was told that they had to remove a portion of fence that was not on their property by the end of the day. The resident advised that she was not physically able to meet that requirement. The AWCK employee returned to the property after work hours and removed it for the resident himself by hand.

Mayor Pro Tem Kimrey asked staff where we stand on the bike lanes along Pine Street. Mr. Maness and Mr. Holland advised that we are close to getting these started and they anticipate that work will begin within the next couple of weeks.

At 10:02 p.m. Council Member Turner made a motion to adjourn, seconded by Mayor Peterman. All voted in favor of the motion.

Darcy Sperry, City Clerk	

CITY OF GRAHAM RELEASE ACCOUNTS

AUGUST COUNCIL MEETING

ACCT#	<u>YEAR</u>	NAME	REASON FOR RELEASE	AMOUNT RELEASED
560935	2014 - 2017	PIERSON, DIANA NASH	MOVED OUT OF STATE - BOAT/MOTOR	184.02
664089	2017	TAYLORS ZINN ENTERPRISES INC	LISTING AMENDED	1,095.76
664089	2018	TAYLORS ZINN ENTERPRISES INC	LISTING AMENDED	1,096.85

City of Graham

P. O. Drawer 357 201 South Main Street Graham, North Carolina 27253 Tel: (336) 570-6700 / Fax: (336) 570-6703

PRELIMINARY REPORT FOR FISCAL YEAR 2017 - 2018

TO:

Frankie Maness, City Manager

Graham City Council

FROM:

Sandy P. Callahan, Tax Collector

DATE:

July 9, 2018

In accordance with N.C.G.S. 105-373(a)(1), I respectfully submit the following Report:

Attached to this Report is a combined list of the persons owning real property whose taxes for 2017 remain unpaid, and persons not owning real property whose personal property taxes for 2017 remain unpaid, along with the principal amount owed by each person.

In compliance with the N.C.G.S. 105-373(a)(3), attached hereto is a Report entitled "Settlement for Current Taxes for Fiscal Year 2017-2018" dated June 30, 2018 setting forth my full settlement for all taxes in my hands for collection for the fiscal year 2017-2018.

Further, I hereby certify that I have made diligent efforts to collect the taxes due from the persons listed in such a manner that is reasonably necessary.

Respectfully submitted,

Sandy P. Callanan, Tax Collector

SWORN TO AND SUBSCRIBED BEFORE ME, this 10th day of July, 2018.

Notary Public

My Commission expires:

10/29/2022

Debbie C Jolly
Notary Public
Alamance County
North Carolina
My Commission Expires 10/29/2022

SETTLEMENT FOR CURRENT TAXES FOR FISCAL YEAR 2017-2018 June 30, 2018

	TOTAL PROPERTY VALUATION	RATE	AMOUNT OF LEVY
TAX LEVY-CITY WIDE	1,046,375,490	0.455%	4,761,011.39
DISCOVERIES:			
CURRENT YEAR & PRIOR YEAR	4,884,666		22,225.23
ABATEMENTS:	(4,410,837)		(20,168.88)
ANNEXATIONS	675,879		2,577.72
UNCOLLECTED INTEREST			3,306.05
UNCOLLECTED ADVERTISING CO	<u>OST</u>		717.51
TOTAL LEVY FOR YEAR	1,047,525,198		4,765,645.46
LESS UNCOLLECTED TAX: REAL PROPERTY			10.500.55
PERSONAL PROPERTY			49,502.57 10,129.56
TERSONAL TROTERT			59,632.13
CURRENT YEAR TAXES COLLE	CTED:		4,706,013.33
PERCENT OF CURRENT YEAR O	COLLECTED:		98.75%
DMV VEHICLE TAX & TAG RECEI	IVED (July 1, 2017 - Jun	e 30, 2018)	512,719.41
TOTAL MOTOR VEHICLE COLL	LECTION		512,719.41

Submitted by: Sandy P. Callahan, Tax Collector

TAXPAYER Name RANGE:		TO zzzzz	zzzzzzzzzz	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
433889 A & N TOOL & MACHINE I 2017 017015 2017 017016 2017 017017	1.57 31.04 2.77			.16 3.10 .28	1.73 34.14 3.05	.08 1.98 .16		1.81 36.12 3.21 41.14 *
635716 ACENCIO, PEDRO 2017 017037	52.46			5.25	57.71	3.30		61.01 61.01 *
492158 AGUILAR, USBALDO 2017 017086	6.83			.68	7.51	.45		7.96 7.96 *
660245 AINSWORTH, LISA RENEE P#144314 2017 017089 1515 A S MAIN ST	JOHNSON 126.86				126.86	7.29	4.00	138.15 138.15 *
637469 ALAMANCE SHINY CARS 2017 017106				3.04	3.04	.08		3.12 3.12 *
17269 ALAMANCE, COUNTY P#147224 2017 025393 779 WOODY DR	17.87				17.87	.30		18.17
666292 ALCACIO, BRENDA TERESA 2017 017156	41.54			4.15	45.69	2.61		18.17 * 48.30 48.30 *
646356 ALGHABEN, ENAS MOUSA P#146927 2017 017166 509 KERNODLE DR	68.25				68.25	3.92	4.00	76.17
659635 ALVAREZ, CRUZ JESUS A 2017 017206	21.79			2.18	23.97	1.38		76.17 * 25.35 25.35 *
611683 AMAYA, ROLANDO CALVO 2017 017214	4.50			.45	4.95	.30		5.25 5.25 *
603530 ANTUNEZ, IGNACIO 2017 017280	19.61			1.96	21.57	1.23		22.80 22.80 *
635706 ARANDA, MARIA 2017 017300	20.98			2.10	23.08	1.31		24.39 24.39 *
620357 ARIEL, JOSE 2017 017315	23.30			2.33	25.63	1.46		27.09 27.09 *
654341 ARROYO, JOSE FRANCISCO P#146626 2017 017323 701 WHITE ST	220.55				220.55	12.66	4.00	
666267 ASHBY, KATRINA 2017 017325	27.39			2.74	30.13	1.75		237.21 *
663925 AUTRY, ALONZO IV 2017 017387	19.75			1.98	21.73	1.23		31.88 *

TAXPAYER Name RANGE: TO ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ								
TAXPAYER NO NAME YR RECEIPT GENE	RAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
51 610 P. G. DDWYYY GOVERN GEORG TVG								22.96 *
51618 B G, DRYWALL CONTRACTORS INC P#131525 2017 017460 127 WOODLAND DR	.96				127.96	7.36	4.00	139.32
653337 BAILEY, ANTHONY								139.32 *
2017 017468 11	.92			1.19	13.11	.76		13.87 13.87 *
635427 BALTAZAR, EVARISTA 2017 017501 9	.92			.99	10.91	.62		11.53 11.53 *
575442 BARRETT, MICHAEL P#135221 2017 017559 45 WASHINGTON ST	.50				45.50	2.61	4.00	52.11 52.11 *
666557 BARTS, BRANDY M								52.11 ^
2017 017562 8				.84	9.26	.54		9.80 9.80 *
602015 BARTS, HELEN JOHNSON LIFE EST P#147485 2017 017563 203 309 CLAPP ST					203.59	11.72	4.00	219.31
								219.31 *
2017 017578 42 2017 017580 3	16 49 82			2.42 4.25 .38	26.58 46.74 4.20			28.11 49.42 4.43 81.96 *
134352 BAUGHN, JERRY WADE P#143974 2017 017588 375 102 HALL ST	.11				375.11	21.55	4.00	400.66
577111 BAUTISTA, JOSE								400.66 *
2017 017590 4	. 55			.46	5.01	.30		5.31 5.31 *
100506 BAUTISTA, JOSE MAGDALENO 2017 017591 38	.22			3.82	42.04	2.44		44.48 44.48 *
647453 BEASLEY, ROBERT J P#147115 2017 017612 278 607 E ELM ST	.24				278.24	16.01	4.00	298.25
								298.25 *
469916 BEAZER, LOUISE H HEIRS P#134892 2017 017622 427 511 BORDER ST	.45				427.45	24.60	4.00	456.05
468766 BEAZER, LOUISE HOLLIDAY HEIRS								456.05 *
P#135250 2017 017623 45 NORTH ST					45.50	2.61	4.00	52.11
585361 BELL LINDA J								52.11 *
2017 017632 1	.16 .59			.12 .16	1.28 1.75	.08		1.36 1.84 3.20 *

TAXPAYER Name RANGE:		TO zzzzz	:ZZZZZZZZZZZ		ZZZZ			
TAXPAYER NO NAME YR RECEIP	Γ GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
653342 BENITEZ, BRAULIO 2017 017649	11.42			1.14	12.56	.70		13.26 13.26 *
615155 BENITEZ, MARIO P#147721 2017 017651 1116 CASTLE DR	800.73				800.73	46.06	4.00	850.79
188827 BENITEZ, SABINO 2017 017652	43.41			4.34	47.75	2.76		850.79 * 50.51 50.51 *
538829 BIGELOW, DEXTER LAMON 2017 017692	2.28			.23	2.51	.15		2.66 2.66 *
200477 BIRTH, JAMES ERNEST 2017 017702	1.93			.19	2.12	.14		2.26 2.26 *
647389 BLACK, THOMAS S 2017 017724	1.37			.14	1.51	.08		1.59 1.59 *
529377 BLACKARD PROPERTIES II P#146087 2017 017725 106 W HANOVER RD	I LLC 16.74				16.74	.39	4.00	21.13
616873 BLACKMAN, SANDY DEAN 2017 017730 2017 017731	3.53 1.37				3.53 1.37	.22		21.13 * 3.75 1.45 5.20 *
112316 BLETHEN, JANICE R P#134908 2017 017754 910 PATTON ST	181.94				181.94	10.44	4.00	196.38
P#134972 2017 017755 912 PATTON ST	186.17				186.17	10.72	4.00	200.89 397.27 *
163050 BORIPHET, ANUCHA 2017 017828 2017 017829	1.46 1.32			.15	1.61 1.45	.08		1.69 1.53 3.22 *
434501 BORTZ, DAVID JOHN 2017 017832 2017 017833	11.56 4.50			1.16 .45	12.72 4.95	.75		13.47 5.25 18.72 *
4855 BRAXTON, ANDREA L P#134701 2017 017914 FRANKLIN ST	120.26				120.26	6.91	4.00	131.17
592680 BREWER, W DENNIS P#147277 2017 017938 418 DOGGETT DR	397.19				397.19	22.84	4.00	131.17 * 424.03
5548 BRISTOW, EDWIN S JR P#145452 2017 017950 401 BANKS ST	124.69				124.69	7.19	4.00	424.03 * 135.88 135.88 *

TAXPAYER Name RANGE:		TO zzzzz	ZZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEI	PT GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
604966 BROOKS, MFG SOLUTION 2017 02539					1.25	.01		1.26 1.26 *
658075 BROOKS, STEFEN AKA A P#171286 2017 01797 624 W INTERSTATE SERVICE RD					27.21	1.54	4.00	32.75
477038 BROOKS, TANYA KENNED P#145530 2017 01797					265.19	1.99	4.00	32.75 * 271.18
309 W MARKET ST P#145537 2017 01798 W MARKET ST	1 45.50				45.50	2.61	4.00	52.11
645771 BUCKNER, DALE COLLIN P#145557 2017 01808 400 MILL ST					244.31	14.04	4.00	323.29 * 262.35
5612 BUCKNER, ETHEL MOON P#134964 2017 01808 911 OAKLEY ST					3.64	.06		262.35 * 3.70
62549 BULLA WARREN TIRE CO 2017 01810				.09	1.00	.07		3.70 * 1.07 1.07 *
661192 BUNTON, BETTIE LOU P#135315 2017 01812 409 PROVIDENCE ST	1 313.32				313.32	18.02	4.00	335.34
466447 BURKE, ANNIE ETAL P#144942 2017 01814 CHEEKS LN	3 304.05				304.05	17.48	4.00	335.34 * 325.53
P#145075 2017 01814 GILBREATH ST	4 154.96				154.96	8.90	4.00	167.86 493.39 *
33556 BURKE, JAY L P#134351 2017 01814 BOYD CREEK DR	6 77.81				77.81	4.46	4.00	86.27
P#145871 2017 01814 110 112 S MAIN ST	7 1,124.69				1,124.69	64.69	4.00	1,193.38
P#170076 2017 01814 W MOORE ST	8 230.91				230.91	13.27	4.00	248.18
496896 BURKE, JAY L P#145528 2017 01814 211 ONEIDA ST	9 45.50				45.50	2.61	4.00	1,527.83 * 52.11
443021 BURNETTE, ROSCOE F P#146828 2017 01817 513 TOWN BRANCH RD	9 119.70				119.70	1.80	4.00	52.11 * 125.50
22588 BURNT SHOPS INC P#152970 2017 01818 KRONBERGS CT	4 364.77				364.77	10.96	4.00	125.50 * 379.73

CITY OF GRAHAM	ACCOU	NTS RECEI	VABLE REGISTER			2.06 DATE	07/03/2018	TIME 08:51:18	PAGE 0005
TAXPAYER Name RANGE:			TO zzzzzzz	ZZZZZZZZZ	ZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME	YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
CCCC20 CADADA M	ADIA E LUGO								379.73 *
666530 CABADA, M	2017 018215	74.03			7.40	81.43	4.68		86.11 86.11 *
652527 CAIN, MIC P#146720 513 JOHNSON AVE	HAEL E ETAL 2017 018222	691.54				691.54	39.78	4.00	735.32
558454 CALDEYRO,	TRAMELL D								735.32 *
P#146842 HUNTER ST	2017 018224	69.00				69.00	3.98	4.00	76.98 76.98 *
507153 CALL, BIL		F14 04				F14 04	20.60	4 00	
P#146807 200 OAKGROVE DR	2017 018230	514.94				514.94	29.60	4.00	548.54
178134 CAMPBELL,									548.54 *
P#135321 403 PROVIDENCE ST	2017 018238	199.11				199.11	11.43	4.00	214.54
P#135331 401 PROVIDENCE ST	2017 018239	154.99				154.99	8.90	4.00	167.89
419252 CANOVAI,	CAROL ANN IRREVO	C TRU							382.43 *
P#146158 S MELVILLE ST	2017 018252	54.60				54.60	3.05		57.65
608231 CARBAJAL,									57.65 *
	2017 018273	7.83			.78	8.61	.47		9.08 9.08 *
529070 CARDEN, T P#147425 119 FLOWERS ST	ERESA HARDEE 2017 018276	10.13				10.13	.23		10.36
635504 CARTER, B	RIAN								10.36 *
·	2017 018326	52.46			5.25	57.71	3.30		61.01 61.01 *
501667 CARTER, B		1.34			.13	1.47	.08		1.55 1.55 *
5793 CARTER, D P#145398 308 W GILBREATH ST	AVID M 2017 018333	253.59				253.59	14.57	4.00	272.16
									272.16 *
654546 CASTANEDA P#146431 1003 JEFFREYS ST	2017 018365	80.99				80.99	4.67	4.00	89.66
21767 CASTANEDA	, PEDRO								89.66 *
	2017 018366	12.74			1.27	14.01	.83		14.84 14.84 *
514448 CAULDER,	LESLIE SAMUEL 2017 018389	4.55			.46	5.01	.30		5.31 5.31 *

5.31 5.31 *

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TAXPAYER Name RANGE:			TO zzzzzzz	ZZZZZZZZZ	ZZZZ				
TAXPAYER NO NAME Y	R RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
455784 CECILIO, BALD 201	EMAR 7 018405	26.94			2.69	29.63	1.69		31.32 31.32 *
4888 CHAMPION, ALO P#143847 201 1715 BROADWAY DR	MA 7 018442	719.35				719.35	41.39	4.00	764.74
641590 CHAMPION, GOR P#135258 201 806 NORTH ST	DAN ALLEN 3 7 018444	JR 183.03				183.03	10.51	4.00	764.74 * 197.54
P#135305 201 810 NORTH ST	7 018445	52.18				52.18	2.99	4.00	59.17
491677 CHAVEZ, SANDR 201	A LILA 7 018489	32.35			3.24	35.59	2.06		256.71 * 37.65 37.65 *
455247 CHAVEZ, TERES 201	A 7 018490	11.74			1.17	12.91	.76		13.67 13.67 *
469037 CHEEK, FRANCE P#145989 201 102 ALLEN ST	S F HEIRS 7 018496	165.36				165.36	9.51	4.00	178.87
593966 CHEEK, STACIA P#135284 201 711 WASHINGTON ST	. М 7 018502	218.28				218.28	12.57	4.00	178.87 * 234.85
	EMMETT 7 018504 7 018505	6.12 3.25			.61 .33	6.73 3.58	.38		234.85 * 7.11 3.80 10.91 *
28424 CHILDRENS, CH P#135373 201 N MAIN ST		NS CHAP 1.36				1.36	.08	4.00	5.44
175059 CLARK, EDWIN 201	HUEL 7 018582	25.21			2.52	27.73	1.60		5.44 * 29.33 29.33 *
652145 CLIFFORD, JER P#146307 201 214 ALBRIGHT AVE	EMIAH 7 018602	522.87				522.87	30.06	4.00	556.93
246708 COLE, STEVEN P#135022 201 402 W GILBREATH ST	HOWARD 7 018643	341.67				341.67	19.63	4.00	556.93 * 365.30
622261 COLETRANE, LE P#146905 201 608 MORROW RD	LIA HEIRS 7 018655	75.43				75.43	4.36	4.00	365.30 * 83.79
10422 COLETRANE, WI P#147114 201 608 E ELM ST	LLIAM H 7 018656	132.00				132.00	7.59	4.00	83.79 * 143.59

TAXPAYER Name RANGE:			TO zzzzzzz	ZZZZZZZZZZ	ZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME	YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
657622 COMPTON WITH	I TAM DOCEDE C	D WD*							143.59 *
657633 COMPTON, WIL P#143947 20 1232 ROGERS RD		674.17				674.17	38.78	4.00	716.95
26448 CONE, ERNEST									716.95 *
P#135298 20 701 SIDEVIEW ST	17 018729	420.47				420.47	24.16	4.00	448.63
476428 CONGDON, BRI.	AN ERIC								448.63 *
P#146426 20 1010 JEFFREYS ST	17 018733	353.18				353.18	20.22		373.40
577173 CONTRERAS, D	INORA								373.40 *
	17 018747	5.05			.51	5.56	.31		5.87 5.87 *
653732 CONTRERAS, M 20	ARIXA 17 018750	4.55			.46	5.01	.30		5.31 5.31 *
	S JR 17 018768	337.94				337.94	19.41	4.00	361.35
511 N MARSHALL ST P#146349 20 MARSHALL ST	17 018769	68.25				68.25	3.92	4.00	76.17
666279 COOK, SANDY	M								437.52 *
		136.41				136.41	7.83	4.00	148.24
611626 COPELAND, DA	RRELL GREY								148.24 *
P#171334 20 828 BUCKNER ST	17 018790	199.62				199.62	11.49	4.00	215.11
493511 CORNERSTONE,	SALES & RENT								215.11 *
P#146546 20 401 ALBRIGHT AVE	17 018801	48.56				48.56	1.44	4.00	54.00
659636 CORTEZ, EDUA	RDO								54.00 *
	17 018804	9.92			.99	10.91	.62		11.53 11.53 *
459765 CORTEZ, FILA 20	DELFO 17 018805	17.75			1.78	19.53	1.14		20.67 20.67 *
603445 CORTEZ, GONZ.	ALEZ/ROMERO A 17 018806	RCELI 35.17			3.52	38.69	2.22		40.91
608275 CRESCO CAPIT.		33.17			3.32	30.00	2.22		40.91 *
20	17 018887	453.68				453.68	26.07		479.75 479.75 *
635718 CRISTOBAL, M 20	ELESIO MANUEL 17 018903	31.80			3.18	34.98	2.00		36.98 36.98 *
337200 CRUTCHFIELD,	JAMES ALFRED	JR							50.70

TAXPAYER Name RANGE:		TO zzzzzz	ZZZZZZZZZZ	zzzzzzzz	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
2017 018925 2017 018926	2.46 2.82			.25	2.71 3.10	.15 .16		2.86 3.26 6.12 *
455773 CRUZ, CORNELIO/ANDREA 2017 018930	18.47			1.85	20.32	1.16		21.48 21.48 *
666594 CRUZ, GUADALUPE 2017 018934	4.55			.46	5.01	.30		5.31 5.31 *
653299 CRUZ, JAVIER 2017 018936	5.05			.51	5.56	.31		5.87 5.87 *
552895 CRUZ, JAVIER/GEORGIA 2017 018937	4.55			.46	5.01	.30		5.31 5.31 *
2017 018949 2017 018950 2017 018951	1,682.18 4.21 28.61 65.15				1,682.18 4.21 28.61 65.15	96.74 .23 1.62 3.75		1,778.92 4.44 30.23 68.90 1,882.49 *
176932 CURTIS, JANE MCNAIR P#135119 2017 018975 315 W ELM ST	278.51				278.51	16.02	4.00	298.53
116299 CUTLIP, WILLIAM BRIAN 2017 018986 2017 018987	13.15 5.92				13.15 5.92			298.53 * 13.91 6.24 20.15 *
513629 DAMASO, HERLINDO 2017 019012	17.75			1.78	19.53	1.14		20.67 20.67 *
635506 DARK, EDDIE LEWIS 2017 019016	52.46			5.25	57.71	3.30		61.01 61.01 *
207445 DAVIS, ALEX JACKSON JR 2017 019028	7.64			.76	8.40	.47		8.87 8.87 *
579745 DAVIS, CHARLES ERIC 2017 019031 2017 019032	.91 1.34			.09	1.00 1.47	.07		1.07 1.55 2.62 *
9505 DAVIS, DORIS B P#145088 2017 019038 1111 E GILBREATH ST	226.31				226.31	5.10	4.00	235.41
587109 DAVIS, RICHARD EMERSON : P#144201 2017 019063 208 IVEY RD	LIV TR 493.60				493.60	28.37	4.00	235.41 * 525.97
649880 DAY, EDWARD E JR P#145685 2017 019070 GERALD ST	68.25				68.25	3.92	4.00	525.97 * 76.17

TAXPAYER Name RA	NGE:			TO zzzzz	ZZZZZZZZZZZ	ZZZZZZZZZZ	ZZZZ			
TAXPAYER NO	NAME YR F	RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
24509 DAY,	CHEDWIN T									76.17 *
	2017 (019071	286.37				286.37	16.48	4.00	306.85
667214 DBD/M	ONROE X LLO	C								306.85 *
((71(F DBIW)	2017 (2017 (2017 (019079 019080	310.30 13.65 108.36			5.36 31.03 1.37 10.84	5.36 341.33 15.02 119.20			5.56 360.96 15.87 126.03 508.42 *
667165 DELTA			167.85			16.79	184.64	10.59		195.23 195.23 *
651663 DENNI P#146969		019140	496.98				496.98	28.59	4.00	529.57
613 JOHNSON AVE										529.57 *
630075 DIAZ,		019156	24.80			2.48	27.28	1.55		28.83 28.83 *
653332 DIAZ,		NIO 019158	12.83			1.28	14.11	.83		14.94 14.94 *
607936 DIGGI P#144675 IVEY RD	NS, JAMES I 2017 (D 019175	1.93				1.93	.09	4.00	6.02
13756 DILLE P#144506 ROSS ST	CHAY, CYNTHI 2017 (IA YVETTE 019189	91.00				91.00	5.22	4.00	6.02 * 100.22 100.22 *
32778 DIXSC P#144482 402 CORNELIA DR	ON, EDDIE 2017 (019209	122.77				122.77	7.06	4.00	133.83
92731 DODS0		AY 019221	4.64				4.64	. 24		133.83 *
577195 DOWDY		019254	7.10			.71	7.81	.46		4.88 * 8.27
643235 EDWAF		KEITH 019361	7.96			.80	8.76	.53		8.27 * 9.29
667513 EDWAF	2017 (WAYNE 019366 019367	1.32 1.80			.13	1.45 1.98	.08		9.29 * 1.53 2.07 3.60 *
566069 ELITE P#146048		ING LLC 019380	31.50				31.50	1.83	4.00	37.33
PARKER ST P#146399	2017 (019381	1,386.39				1,386.39	79.73	4.00	1,470.12

TAXPAYER Name RANGE	:		TO zzzzzz	ZZZZZZZZZ	ZZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAM	E YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
300 E PARKER ST P#146420 PARKER ST	2017 019382	15.22				15.22	.85	4.00	20.07
652094 ELLER, C P#146332 110 E HILL ST		285.61				285.61	16.41	4.00	1,527.52 * 306.02
651010 ELLISON,		19.29			1.93	21.22	1.22		306.02 * 22.44 22.44 *
632342 EVERBANK	COMMERCIAL FINA 2017 019473	ANCE 1.25				1.25	.05		1.30 1.30 *
642234 EVERETTE P#145688 201 GERALD ST	, DOROTHY LOUISE 2017 019475	E MONRO 51.19				51.19	2.92	4.00	58.11 58.11 *
667006 FAGGART, P#146408 521 N MELVILLE ST	REBECCA LIFE ES 2017 019488	STATE 356.94				356.94	20.54	4.00	381.48
662035 FIELDS, P#148917 614 QUINCY CT	LATIEL 2017 019578	439.96				439.96	25.30	4.00	381.48 * 469.26
353213 FISH-TEC	H INC 2017 019610 2017 019611 2017 019612 2017 019613	15.05 3.37 9.35 33.77				15.05 3.37 9.35 33.77	.85 .22 .54 1.93		469.26 * 15.90 3.59 9.89 35.70 65.08 *
367004 FOUST, J	ANET ELIZABETH 2017 019708	10.33			1.03	11.36	.68		12.04 12.04 *
500308 FOX, CLI	FTON GENE 2017 019715 2017 019716	4.23 4.37			.42	4.65 4.81	.24		4.89 5.11 10.00 *
3004 FREEMAN, P#171343 HALSEY ST		52.60				52.60	3.00	4.00	59.60
12338 GARRETT, P#144401 1108 SOUTHWOOD DR	MABEL D REVOC 7 2017 019833					522.29	30.05	4.00	59.60 * 556.34
5381 GILBERT, P#146114 116 E GILBREATH ST	MARY T & 2017 019860	374.13				374.13	21.53	4.00	556.34 * 399.66
620562 GONZALEZ	, ALMA Y 2017 019927	9.69			.97	10.66	.61		399.66 * 11.27

TAXPAYER Name RANGE:		TO zzzzz	ZZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
653335 GONZALEZ, JOAQUIN								11.27 *
2017 019930				1.27	14.01	.83		14.84 14.84 *
379753 GRAHAM DRIVE FAMILY CAR 2017 019961 2017 019962	E 32.39 1.20			3.24 .12	35.63 1.32	2.06		37.69 1.40 39.09 *
663378 GRANT, DOUGLAS LEE 2017 020008 2017 020009	2.41 2.07			.24	2.65 2.28	.15 .15		2.80 2.43 5.23 *
15231 GRANT, STEPHEN ERIC 2017 020012	4.10			.41	4.51	. 24		4.75 4.75 *
607650 GRAVES, CASSANDRA P#146377 2017 020028 HILL ST	19.91				19.91	1.15	4.00	
34818 GRAVES, HELEN LOUISE WA	TLINGTO							25.06 *
P#145594 2017 020033 415 ONEIDA ST	269.35				269.35	15.49	4.00	288.84
614925 GRAY, PATRICIA BOSWELL P#145390 2017 020043 405 GATES AVE	424.09				424.09	24.38	4.00	288.84 * 452.47
59899 GREENE, MICHAEL DAVID								452.47 *
2017 020067	9.15				9.15	.53		9.68 9.68 *
14175 HADLEY, DAVID A P#146413 2017 020125 605 MELVILLE ST							1.51	1.51
663569 HALL, DERRICK EDWARD 2017 020156	28.53			2 05	31.38	1 02		1.51 *
491515 HARDEN PAUL	20.55			2.05	31.30	1.63		33.21 *
2017 020210	74.54			7.45	81.99	4.69		86.68 86.68 *
662813 HARRIS, JAMES EARL	1.37 9.10 17.18 23.73 3.69 38.00			.14 .91 1.72 2.37 .37 3.80	10.01 18.90 26.10 4.06 41.80	.08 .60 1.08 1.52 .23 2.39		1.59 10.61 19.98 27.62 4.29 44.19 108.28 *
2017 020262 2017 020263 206557 HARRIS, JOHN RAY	91.17				91.17	5.22		96.39 102.90 *
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TAXPAYER Name RANGE:		TO zzzzz	ZZZZZZZZZZZ	ZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
2017 020265 2017 020266 2017 020267	1.18 1.32 29.17			.12 .13 2.92	1.30 1.45 32.09	.08		1.38 1.53 33.93 36.84 *
660484 HARRIS, JOHNNY RAY ETAL P#145672 2017 020268 811 STALEY ST	1.41				1.41	.01	4.00	5.42
422837 HARRIS, KAREN M P#145331 2017 020269 E HARDEN ST	298.62				298.62	17.17	4.00	5.42 * 319.79
644700 HAYES, KEVIN GORDON 2017 020330	21.16			2.12	23.28	1.32		319.79 * 24.60 24.60 *
653999 HAYES, KEVIN GORDON 2017 020331 2017 020332	7.99 10.78			.80 1.08	8.79 11.86	.53 .69		9.32 12.55 21.87 *
633578 HELDERMAN, MARIE E HEIR P#145437 2017 020354 414 S MAPLE ST	S 507.75				507.75	29.21	4.00	540.96
443253 HENSLEY, SHANE EUGENE 2017 020377	14.65			1.47	16.12	.92		540.96 * 17.04 17.04 *
383480 HERNANDEZ, PADILLA MARI 2017 020396	A ELENA 10.78			1.08	11.86	.69		12.55 12.55 *
4399 HERNANDEZ, ROGOBERTO O P#147336 2017 020399 506 WEAVER WAY					510.14	29.35	4.00	543.49
513508 HERNANDEZ-ANGUIANO, JOS 2017 020400	E 16.61			1.66	18.27	1.07		543.49 * 19.34 19.34 *
2176 HESTER, OTHA LEE P#147120 2017 020427 E ELM ST	65.33				65.33	3.76	4.00	73.09
444138 HODGES, KEVIN T P#147265 2017 020466 800 SYCAMORE RD	486.82				486.82	27.99	4.00	73.09 * 518.81
158664 HOPE, JAISUN LERONE 2017 020549	12.06			1.21	13.27	.77		518.81 * 14.04 14.04 *
663254 HORNER, MARK ROGERS 2017 020567 2017 020568 2017 020569	14.63 7.60 3.66			1.46 .76 .37	16.09 8.36 4.03	.92 .47 .23		17.01 8.83 4.26 30.10 *
493923 HOSKINS, ERIC L								20.10 "

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TAXPAYER Name RANGE:		TO ZZZZZZ	ZZZZZZZZZZZ	ZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
P#135100 2017 020579 336 W ELM ST	415.42				415.42	23.91	4.00	443.33 443.33 *
471571 HUERTA, DIANA P#171278 2017 020604 788 E HANOVER RD	102.94				102.94	5.91	4.00	112.85
648263 HUFF, DEBORAH H P#134858 2017 020617 520 CLIMAX ST	128.50				128.50	7.37	4.00	139.87
30928 HUNLEY, TERRY LEE ESTAT 2017 020638 2017 020639	E 30.71 10.92				30.71 10.92	1.76 .62		32.47 11.54 44.01 *
619510 HUTCHERSON, STEPHANIE E 2017 020672	DWARDS 5.64			.56	6.20	.37		6.57 6.57 *
71508 INVESTORS TITLE INS CO 2017 020740	1.76				1.76	.09		1.85 1.85 *
552906 JACOBA, GABRIEL 2017 020788	32.35			3.24	35.59	2.06		37.65 37.65 *
38044 JAKIELSKI, MICHAEL A & P#131335 2017 020803 557 ROCKWOOD DR					651.82	37.49	4.00	693.31
667273 JAL DELIVERIES LLC 2017 020804 2017 020805	58.83 14.47			5.88 1.45	64.71 15.92	3.74 .92		693.31 * 68.45 16.84 85.29 *
657673 JAMES FOOD INC 2017 020806	81.90			8.19	90.09	5.20		95.29 95.29 *
501472 JAMES, WILLIAM T JR 2017 020810 2017 020811	19.97 21.29			2.00 2.13	21.97 23.42	1.24 1.37		23.21 24.79 48.00 *
169422 JANEY, DAVID WAYNE 2017 020813 2017 020814	1.02 1.87			.10 .19	1.12 2.06	.07		1.19 2.20 3.39 *
596282 JASSO, MARIA DE LA CRUZ P#135144 2017 020822 406 POPLAR ST	244.36				244.36	14.04	4.00	262.40
620452 JIMENES, EULALIA A 2017 020866	14.38			1.44	15.82	.92		262.40 * 16.74 16.74 *
603709 JIMENEZ, AZUCENA 2017 020867	40.86			4.09	44.95	2.60		47.55 47.55 *

TAMPAYER NO	TAXPAYER Name RANGE:			TO zzzzzz	ZZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
Market M	TAXPAYER NO NAME	YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
1400 1400			23.21			2.32	25.53	1.46		
Table Tabl						7.40	81.43	4.68		
PH3542			74.91			7.49	82.40	4.75		
1.78 1.78	P#135142 20		114.88				114.88	1.72	4.00	120.60
### 19540 JONES, ROBERT K PH135113										
#### PH135113			17.75			1.78	19.53	1.14		
Color Colo	P#135113 20		1,069.01				1,069.01	61.48	4.00	•
### ### ### ### ### ### ### ### ### ##	659775 JUAREZ, ALEJ	ANDRO								1,134.49 *
### ### ### ### ### ### ### ### ### ##	20.	17 021002	4.55			.46	5.01	.30		
##144759 2017 021025 107.59 107.59 6.20 4.00 117.79 ##144759	20.	17 021011								38.41 11.79
644603 KEPLEY, DAVID MACK JR 2017 021056 1.46	P#144759 20		107.59				107.59	6.20	4.00	
#1348 KIMREY, DOUGLAS SEAN P#134829	644603 KEPLEY, DAVI	D MACK JR								117.79 *
#134829 2017 021137 257.84 257.84 14.81 4.00 276.65 499619 LANGLEY, RAYMOND CHADWICK 2017 021264 4.50 4.50 2017 021265 2.02 2.02 2.02 2.04 2.02 2.02 2.04 2.02 2.02	20	17 021056	1.46			.15	1.61	.08		
499619 LANGLEY, RAYMOND CHADWICK 2017 021264 4.50 2017 021265 2.02 2017 021265 2.02 2018 2017 021265 2.02 2018 2017 021281 68.25 2017 021281 68.25 2017 021281 68.25 2017 021281 68.25 2017 021281 68.25 2017 021286 16.33 20169 LEATH, TYLER C P#146872 2017 021326 75.65 2018 2019 21326 75.65 2018 2019 21326 75.65 2019 21326 75.65 2019 21326 75.65 2019 21326 75.65 2019 21326 75.65 2019 21326 75.65 2019 21326 75.65 2019 21326 75.65	P#134829 20		257.84				257.84	14.81	4.00	276.65
2017 021264 4.50	499619 LANGLEY. RAY	MOND CHADWIC	rk							276.65 *
P#147127 2017 021281 68.25 68.25 3.92 4.00 76.17 CARTER RD 653339 LASTER, TIMOTHY 2017 021286 16.33 1.63 17.96 1.01 18.97 20169 LEATH, TYLER C P#146872 2017 021326 75.65 75.65 .57 4.00 80.22 504 E ELM ST	20.	17 021264	4.50							2.36
653339 LASTER, TIMOTHY 2017 021286 16.33 1.63 17.96 1.01 18.97 18.97 * 20169 LEATH, TYLER C P#146872 2017 021326 75.65 75.65 75.65 .57 4.00 80.22 504 E ELM ST	P#147127 20.		68.25				68.25	3.92	4.00	
20169 LEATH, TYLER C P#146872 2017 021326 75.65 75.65 .57 4.00 80.22 504 E ELM ST	653339 LASTER, TIMO	ГНҮ								76.17 *
P#146872 2017 021326 75.65 75.65 75.65 .57 4.00 80.22 504 E ELM ST			16.33			1.63	17.96	1.01		
	P#146872 20		75.65				75.65	.57	4.00	80.22
		17 021327	16.60				16.60	.93	4.00	21.53

TAXPAYER Name RANGE:		TO zzzzzzz	zzzzzzz	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
E ELM ST								101.75 *
666695 LEE, BRIAN 2017 021329	6.55			.66	7.21	.39		7.60 7.60 *
525649 LEFEVRE, MICHAEL WAYNE 2017 021347	1.64			.16	1.80	.09		1.89 1.89 *
648152 LEON, ALFREDO JIMENEZ 2017 021354	29.26			2.93	32.19	1.84		34.03 34.03 *
659837 LEON, LUCIO ANITA 2017 021355	15.65			1.57	17.22	.99		18.21 18.21 *
382555 LEON, SERGIO 2017 021357	22.80			2.28	25.08	1.45		26.53 26.53 *
352851 LIFE CHANGES COUNSELING 2017 021387	1.42				1.42	.08		1.50 1.50 *
619077 LIMON, ELIAS CARBALLA 2017 021388	15.02			1.50	16.52	.93		17.45 17.45 *
603455 LIMON, LAURO 2017 021389	12.74			1.27	14.01	.83		14.84 14.84 *
644665 LINDLEY, WILLIAM ANTHONY 2017 021394	8.51				8.51	. 47		8.98 8.98 *
57340 LIVESAY WILLIAM L PA 2017 021419	.91			.09	1.00	.07		1.07 1.07 *
666558 LONG, JEORIA 2017 021467	12.15			1.22	13.37	.77		14.14 14.14 *
660081 LONG, LUTHER DARRELL 2017 021470	27.39			2.74	30.13	1.75		31.88 31.88 *
605377 LOVE, LONETTA M P#170271 2017 021503 728 BEN CT	460.36				460.36	26.46	4.00	490.82
491384 LOWE TRANSMISSION SERVICE								490.82 *
2017 021516	13.89			1.39	15.28	.86		16.14 16.14 *
502537 LOY, MICHAEL W 2017 021541	1.27			.13	1.40	.08		1.48 1.48 *
536611 LUNSFORD, MELISSA SHANNON 2017 021550	20.98			2.10	23.08	1.31		24.39 24.39 *
644224 MAJORS, JAMES P 2017 021619	20.16			2.02	22.18	1.29		23.47

TAXPAYER Name RANGE	:		TO zzzzzz	ZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAM	E YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
566762 MANUEL,	TEEFDEV MADV								23.47 *
300/02 MANUEL,	2017 021661 2017 021662	2.89 .91			.29	3.18 1.00	.16 .07		3.34 1.07 4.41 *
653726 MARQUINA	, MARICELA 2017 021694	4.55			.46	5.01	.30		5.31 5.31 *
667102 MARSHALL P#146442 222 CANNON ST	, D SMITH HEIRS 2017 021700	213.73				213.73	12.27	4.00	230.00
578225 MARTIN,	MARIA								230.00 *
	2017 021723	20.98			2.10	23.08	1.31		24.39 24.39 *
23155 MARTIN, P#145161 LEONARD DR	TONY LYNN 2017 021727	21.85				21.85	1.24	4.00	27.09
	TONY LYNN & MICH								27.09 *
P#145165 LEONARD DR	2017 021728	17.52				17.52	1.00	4.00	22.52
434106 MARTINES	, SOCHIL PANTALE	ON							22.52 *
	2017 021730	4.55			.46	5.01	.30		5.31 5.31 *
635723 MARTINEZ	, JESSICA CECILIO 2017 021741	O 20.07			2.01	22.08	1.29		23.37 23.37 *
514570 MATIAS,	APOLIMER CECILIO 2017 021767	9.83			.98	10.81	.62		11.43 11.43 *
165466 MATKINS, P#147082 503 CAMERON RD	DENISE CREECH 2017 021778	399.10				399.10	22.93	4.00	426.03
660926 MATTHEWS	TORE CEDITOR								426.03 *
000920 MATTHEWS	2017 021783	12.48			1.25	13.73	.77		14.50 14.50 *
22912 MCADOO, P#146849	PERCY N HEIRS 2017 021830	68.25				68.25	3.92	4.00	76.17
TOWN BRANCH RD P#146854 600 TOWN BRANCH RD	2017 021831	158.49				158.49	9.12	4.00	171.61
28776 MCCLURE.	FUNERAL SERVICE	TNC							247.78 *
P#144197 1102 S MAIN ST						1,167.23	67.09	4.00	1,238.32
532880 MCDONALD	, AMBER								1,238.32 *
P#131488 ROGERS RD		171.19				171.19	9.82	4.00	185.01
									185.01 *

TAXPAYER Name RANGI	Ξ:		TO zzzzzz	zzzzzzzz	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAI	ME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
663491 MEDLEY,	CHAD AARON 2017 021993	1.46			.15	1.61	.08		1.69 1.69 *
662501 MEJIA, 6 P#135252		148.99				148.99	8.58	4.00	161.57
501 BORDER ST P#135253 NORTH ST	2017 022009	6.39				6.39	.38	4.00	10.77
22589 MELVILLI	E, PLASTICS INC								172.34 *
P#152972 TROLLINGWOOD RD		285.68				285.68	8.56	4.00	298.24
22594 MELVIN,	JOHN DAVID								298.24 *
	2017 022021	64.94				64.94	.98	4.00	69.92
EGGGG MEDDINE	ATHER, THEODORE R	OOSEVE							69.92 *
59699/ MERRIWEA	2017 022039	2.28			.23	2.51	.15		2.66
	2017 022040	1.77			.18	1.95	.09		2.04
85792 MTCHARI.	A JAKIELSKI CPA	DΛ							4.70 *
03/92 MICHAEL	2017 022046	3.37				3.37	.22		3.59
	2017 022047	3.72				3.72	.22		3.94
	2017 022048	8.73				8.73			9.25
	2017 022049	1.48				1.48	.08		1.56 18.34 *
648025 MILLER,	GORDON H								10.34
		275.00				275.00	15.80	4.00	294.80
66064E MINOR	JACQUELINE NICOLE								294.80 *
P#171896 351 LONGDALE DR		807.06				807.06	46.39	4.00	857.45
CECTED MOTER	DOV BUGBNE								857.45 *
656159 MOIZE, 5	2017 022133	2.23			.22	2.45	.15		2.60 2.60 *
635707 MONDRAGO	ON, ABIGAIL 2017 022136	4.55			.46	5.01	.30		5.31 5.31 *
446250 MONTES,	FERNANDO ALBERTO 2017 022149	MENDO 4.55			.46	5.01	.30		5.31
457474 MORA, SI	ISANA								5.31 *
	2017 022194	4.55			.46	5.01	.30		5.31 5.31 *
635720 MORALES	, AURELIO 2017 022195	23.21			2.32	25.53	1.46		26.99 26.99 *
635434 MORENO,	RAFAEL 2017 022201	23.30			2.33	25.63	1.46		27.09 27.09 *

TAXPAYER Name RANGE:		TO zzzzzzz	ZZZZZZ	ZZZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
598567 MURILLO, JOSE FERNANDO P#144321 2017 022275 1515 S MAIN ST	414.88				414.88	23.85	4.00	442.73
664889 MURILLO, JOSE FERNANDO P#144312 2017 022276 S MAIN ST	233.39				233.39	13.42	4.00	442.73 * 250.81
625820 MURPHY, RONNIE P#144952 2017 022278 901 E GILBREATH ST	509.55				509.55	29.29	4.00	250.81 * 542.84
652563 MURRAY, MARTIN P#145973 2017 022289 104 W HILL ST	247.42				247.42	14.25	4.00	542.84 * 265.67
641274 MURRAY, NICHELLE RENAY	591.06				591.06	33.97	4.00	265.67 * 629.03
459126 MYRICK ALTON E 2017 022309	10.50			1.05	11.55	.68		629.03 *
666559 MYRICK, JAMES 2017 022314	29.26			2.93	32.19	1.84		12.23 * 34.03 34.03 *
623594 NEW, MOUNT ZION CHRISTIAN P#146790 2017 022366 414 HARDEN ST	N CHRC 92.35				92.35	5.30	4.00	101.65
595096 NEWLIN, ESTHER HEIRS P#135222 2017 022373 501 WASHINGTON ST	170.47				170.47	9.81	4.00	101.65 * 184.28
661170 NIXON, ANGELA P#146902 2017 022410 602 E ELM ST	123.26				123.26	.92	4.00	184.28 * 128.18
50271 NORRIS JAMES DELBERT JR P#146254 2017 022435 300 E ELM ST	149.22				149.22	8.58	4.00	128.18 * 161.80
544746 NORRIS, JAMES DELBERT JR P#134954 2017 022436 PROVIDENCE RD	45.50				45.50	2.61	4.00	161.80 * 52.11
108682 NORRIS, NORMAN E/YUDERKA 2017 022437	19.11			1.91	21.02	1.22		52.11 * 22.24 22.24 *
583234 ODANIEL, WINDY 2017 022486	33.81				33.81	1.93		35.74 35.74 *
638738 OLLARI, MICHAEL W								

TAXPAYER Name RANGE:		TO ZZZZZZ	ZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
P#145030 2017 022515 1885 EDGEWOOD LN	332.89				332.89		4.00	336.89
653708 ORDONEZ, DORIS/OSWALDO								336.89 *
2017 022527	12.92			1.29	14.21	.83		15.04 15.04 *
627529 OVERBEY, LINDA ROXANA 2017 022554	3.12			.31	3.43	.22		3.65 3.65 *
657896 OWENS, KELLIE CLAPP 2017 022576	3.64			.36	4.00	.23		4.23 4.23 *
666308 OXENDINE, KASIE 2017 022585	9.96			1.00	10.96	.62		11.58 11.58 *
483395 PACHECO, JOSE 2017 022594	10.33			1.03	11.36	.68		12.04 12.04 *
596554 PACHECO, OSCAR MANUEL 2017 022595 2017 022596	3.53 16.79			.35 1.68	3.88 18.47	.23 1.07		4.11 19.54 23.65 *
507806 PAHUA, ALEJANDRO 2017 022614	31.80			3.18	34.98	2.00		36.98 36.98 *
553035 PALACIO, JULIA 2017 022624	22.80			2.28	25.08	1.45		26.53 26.53 *
635431 PARGA, SARA 2017 022633	8.05			.81	8.86	.53		9.39 9.39 *
492198 PARMLEY, JERMAINE TYROI 2017 022662	NE 20.02			2.00	22.02	1.29		23.31 23.31 *
588539 PATRICIO, MIGUEL 2017 022684	33.81			3.38	37.19	2.14		39.33 39.33 *
598832 PATTERSON, KAREN TERES. P#134664 2017 022692 316 DENNY CIR	A FOUST 701.30				701.30	40.33	4.00	745.63
648978 PAYNE PRIDE INC								745.63 *
2017 022708 2017 022709	8.74 1.44				8.74 1.44	.52 .08		9.26 1.52
603730 PENLEY, GENE & TERESA 1 2017 022744	NANCE 38.22			3.82	42.04	2.44		10.78 * 44.48 44.48 *
34377 PENNIX, GIBSON L P#146324 2017 022747 308 ALBRIGHT AVE	331.62				331.62	19.08	4.00	354.70
620573 PEREZ, JOSE								354.70 *

TAXPAYER Name RANGE:		TO zzzzzz	ZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
2017 022762	24.80			2.48	27.28	1.55		28.83 28.83 *
659884 PEREZ, STEVE 2017 022764	4.55			.46	5.01	.30		5.31 5.31 *
84244 PHILLIPS, GEORGE F JR 2017 022828	7.74			.77	8.51	. 47		8.98 8.98 *
15211 PICKETT, JOSEPH DANIEL P#147289 2017 022847 326 DOGGETT DR	485.73				485.73	27.91	4.00	517.64
560935 PIERSON, DIANA NASH 2017 022857 2017 022858	22.07 16.79			2.21 1.68	24.28 18.47			517.64 * 25.67 19.54 45.21 *
659639 PINA, GUTIERREZ ALEJANI 2017 022861	PRINIA 11.74			1.17	12.91	.76		13.67 13.67 *
459203 PITNEY BOWES INC 2017 022875	22.64			4.44	27.08	1.54		28.62 28.62 *
190896 POWELL, TRINA DARLENE 2017 022935	2.52			.25	2.77	.16		2.93 2.93 *
92694 PRICE, NANCY H 2017 022965	21.34			2.13	23.47	1.37		24.84 24.84 *
657822 PULLEN, GRACIE S HEIRS P#146949 2017 023012 501 E HANOVER RD	398.08				398.08	22.91	4.00	424.99
666656 QUALLS, DANIEL B 2017 023076	9.96			1.00	10.96	.62		424.99 * 11.58 11.58 *
625404 QUINTERO, FRANCISCO IVA 2017 023086 2017 023087	2.16 2.46			.22	2.38 2.71	.15 .15		2.53 2.86 5.39 *
666586 RAMIREZ, MARIA 2017 023108	74.03			7.40	81.43	4.68		86.11 86.11 *
666149 RAMIREZ, PEREZ ARTURO 2017 023111	36.76			3.68	40.44	2.31		42.75 42.75 *
657406 RAMOS, MIRIAN E ROSALES 2017 023116	4.55			.46	5.01	.30		5.31 5.31 *
649708 RAMSEUR, KAY FRANCES B P#145027 2017 023117 809 MARTIN AVE	LIFE ES 576.23				576.23	33.12	4.00	613.35
35728 RATLIFF, WALTER L & ANN	IIE							613.35 *

CITY OF GRAHAM 2.06 DATE 07/03/2018 TIME 08:51:18 PAGE 0021 ACCOUNTS RECEIVABLE REGISTER

TAXPAYER Name RANGE:		TO zzzzzz	zzzzzzzz	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
P#144668 2017 023130 414 CORNELIA DR	113.72				113.72		4.00	117.72 117.72 *
96575 RAY, JAMES LINARD JR 2017 023137	4.55			.46	5.01	.30		5.31 5.31 *
494194 REALTY, TRUST P#147537 2017 023152 405 ASHBURN ST	394.92				394.92	22.70	4.00	421.62
578691 REYNOLDS, AMANDA ROSE 2017 023184	4.71			.47	5.18	.30		421.62 * 5.48 5.48 *
153860 REYNOLDS, JOHN ALAN 2017 023188	1.27				1.27	.08		1.35 1.35 *
	32.35			3.24	35.59	2.06		37.65 37.65 *
353232 RHODES SCARLETT B 2017 023201 2017 023202	9.65 212.76			.97 21.28	10.62 234.04	.61 13.48		11.23 247.52 258.75 *
614022 RHYNE, SARAH H REVOCABLE P#146395 2017 023209 PARKER ST	TRUST 1.88				1.88	.01		1.89
492256 RICH, LISA D 2017 023218	4.55			.46	5.01	.30		1.89 * 5.31 5.31 *
491332 RIGGAN KATIE 2017 023236	3.77			.38	4.15	. 23		4.38 4.38 *
663904 RIGGSBEE, S DIANE P#146165 2017 023239 310 E GILBREATH ST	311.72				311.72	17.93	4.00	333.65
558625 RILEY, RICKY DONNELL 2017 023242 2017 023243	6.32 2.39			.63 .24	6.95 2.63	.39 .15		333.65 * 7.34 2.78 10.12 *
645802 RIMMER, LYNETTE GRAY P#131522 2017 023246 DARRELL DR	156.10				156.10	8.97	4.00	169.07
29803 RITCHIE, JAMES MICHAEL P#145635 2017 023254 803 N MAIN ST	436.55				436.55	25.08	4.00	169.07 * 465.63
660520 RJC HOLDINGS LLC 2017 023262 2017 023263 2017 023264	597.08 33.41 100.51			59.71 3.34 10.05	656.79 36.75 110.56	37.79 2.14 6.36		465.63 * 694.58 38.89 116.92

TAXPAYER Name RANGE:		TO zzzzz	ZZZZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
2017 023265 2017 023266 2017 023267 2017 023268	29.29 1.13 4.21 2.28			2.93 .11 .42 .23	32.22 1.24 4.63 2.51	1.84 .07 .24 .15		34.06 1.31 4.87 2.66 893.29 *
580956 ROBERTSON, JASON REEVES 2017 023291	3.80			.38	4.18	.23		4.41 4.41 *
508277 ROCHA, JOSE PADRON 2017 023302	23.21			2.32	25.53	1.46		26.99 26.99 *
603451 RODRIQUEZ-CRUZ, LILIA 2017 023316	12.19			1.22	13.41	.77		14.18 14.18 *
663404 ROGER, DAQUAN AMARE 2017 023317	.93			.09	1.02	.07		1.09
436007 ROGERS, CHARLIE D P#145684 2017 023321 207 GERALD ST	126.67				126.67	7.28	4.00	137.95
597461 ROGERS, JOSHUA PRESTON								137.95 *
2017 023330	2.12				2.12	.14		2.26 2.26 *
501880 ROGERS, JOSHUA PRESTON 2017 023331	56.08				56.08	3.22		59.30 59.30 *
607888 RUIZ, ELVID D/ENRIQUE A ME 2017 023397	ENDEZ 34.58			3.46	38.04	2.21		40.25 40.25 *
79827 SALEM LEASING CORP 2017 023447	2.48				2.48	.02		2.50 2.50 *
663187 SALGADO, MIGUEL ANGEL 2017 023525	11.38			1.14	12.52	.70		13.22 13.22 *
659640 SANTIAGO, TZINTZUN SILVIA 2017 023543	24.80			2.48	27.28	1.55		28.83 28.83 *
435348 SATTERFIELD, QUEEN E HEIRS P#146590 2017 023553 403 WALKER AVE	3 128.92				128.92	7.43	4.00	140.35
496781 SELLARS, JOHN DANIEL P#134668 2017 023626 DENNY CIR	113.75				113.75	6.53	4.00	140.35 * 124.28
30610 SENIOR, TIMOTHY R P#146166 2017 023633 GILBREATH ST	54.60				54.60	3.14	4.00	124.28 * 61.74
635583 SERRATO, JVANA SANTIAGO 2017 023644	52.46			5.25	57.71	3.30		61.74 * 61.01

TAXPAYER Name RANGE:		TO zzzzzz	ZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
666560 SHEFFIELD, RICKY								61.01 *
2017 023685	6.87			.69	7.56	.45		8.01 8.01 *
36598 SHELLEY, VOLLIE B P#146095 2017 023687	362.07				362.07	20.84	4.00	386.91
103 W HANFORD RD								386.91 *
4980 SHELLEY, VOLLIE B P#146096 2017 023688 1206 S SELLARS MILL RD	234.98				234.98	3.52	4.00	242.50
578365 SIMMONS, DAVID								242.50 *
2017 023774	38.22			3.82	42.04	2.44		44.48 44.48 *
28083 SIMON, JOANNE M P#145426 2017 023777	295.28				295.28	16.87		312.15
219 W GILBREATH ST								312.15 *
80365 SIMS POTTERY INC 2017 023784	.91			.09	1.00	.07		1.07 1.07 *
489538 SOLANO, ARTURO ESTRADA 2017 023904	4.55			.46	5.01	.30		5.31 5.31 *
4854 SOLAZZO, ENTERPRISES INC P#134695 2017 023906 FRANKLIN ST	113.75				113.75	6.53	4.00	124.28
663406 SOMSAVATH, LAMOU								124.28 *
2017 023912 2017 023913	1.41 2.25			.14 .23	1.55 2.48	.08 .15		1.63 2.63 4.26 *
648295 SOSA, ALEJANDRO P 2017 023921	35.17			3.52	38.69	2.22		40.91 40.91 *
553108 SOSA, CARLOS P 2017 023926	19.61			1.96	21.57	1.23		22.80 22.80 *
561530 SOSA, EFRAIN C 2017 023927	4.55			.46	5.01	.30		5.31 5.31 *
578371 SOSA, JOSE PEREZ 2017 023929	25.21			2.52	27.73	1.60		29.33 29.33 *
647370 SOSA, LORENZO P#131638 2017 023930 1140 GANT RD	249.03				249.03	14.33	4.00	267.36
112555 SOSA, ORLANDO SANTIAGO								267.36 *
2017 023931	4.55			.46	5.01	.30		5.31 5.31 *
653333 SOSA, REYNALDO SOSA								J.JI

TAXPAYER Name RANGE:	TO ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ							
TAXPAYER NO NAME YR R	ECEIPT GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
2017 0	23933 26.94			2.69	29.63	1.69		31.32 31.32 *
384598 SOSA, ROMALDO MA 2017 0				2.36	25.97	1.47		27.44 27.44 *
33497 SOUTH, CREEK LLC P#146831 2017 0 E ELM ST					18.20	1.06	4.00	23.26
652743 SPAULDING, LAVER P#146133 2017 0 308 S MARSHALL ST	NE C HEIRS 23984 272.48				272.48	15.65	4.00	23.26 * 292.13 292.13 *
157451 STEED, ERNESTINE 2017 0				4.99	54.86	3.15		58.01 58.01 *
652326 STEPHENS, TOMEKA P#134698 2017 0 WILSON RD					13.91	.78	4.00	18.69
586894 STOKES, ADDIE HE P#146472 2017 0 312 FIELD ST					107.94	6.21	4.00	18.69 *
33546 STOKES, OBIE LEE P#146451 2017 0 JEFFRIES ST					86.73	4.98	4.00	118.15 * 95.71
659967 STUTTS, ARTHUR 2017 0	24193 10.51				10.51	.61		95.71 * 11.12 11.12 *
651795 SUMMERS, CELESTE P#143669 2017 0 804 CARRAWAY DR	B 24202 159.25				159.25	9.14	4.00	172.39
512942 TEIXEIRA, ROBERT 2017 O				.32	3.48	.22		172.39 * 3.70 3.70 *
653336 TELLEZ, ALFREDO 2017 0				2.98	32.74	1.90		34.64 34.64 *
620709 TELLEZ, EDUARDO 2017 0	24354 4.55			.46	5.01	.30		5.31 5.31 *
383225 TEODORO, LUCIO 2017 0	24359 11.78			1.18	12.96	.76		13.72 13.72 *
599310 TERRY, CASSANDRA P#146131 2017 0 206 E GILBREATH ST					176.76	10.19	4.00	190.95
493174 TETER, GLORIA K P#144489 2017 0					649.98	37.35	4.00	190.95 * 691.33

CITY OF GRAHAM	ACCC	OUNTS RECEIVA	BLE REGISTER			2.06 DATE	07/03/2018	TIME 08:51:18	PAGE 0025
TAXPAYER Name RANGE:			TO zzzzzzz	ZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME	YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
408 ASPEN CT									601 22 #
493159 THE, MEAD									691.33 *
P#145101 928 E GILBREATH ST	2017 024396	39.50				39.50	.60	4.00	44.10
650982 THOMAS SU									44.10 *
	2017 024400	2.87			.29	3.16	.16		3.32 3.32 *
421322 THOMPSON, P#134808	ALFRED HAYWOOD 2017 024421	201.28				201.28	11.58	4.00	216.86
608 POPLAR ST									216.86 *
14947 THOMPSON, P#146194	BLEEKA T HEIRS 2017 024426	3 467.23				467.23	26.84	4.00	498.07
200 S MARSHALL ST P#146281	2017 024427	245.05				245.05	14.10	4.00	263.15
406 N MARSHALL ST P#146488	2017 024428	136.50				136.50	7.83	4.00	148.33
GOLEY ST									909.55 *
32740 THOMPSON, P#145833	CHARLES C III 2017 024431	154.27				154.27		4.00	158.27
12 COURT SQ NW	2017 021131	131.27				131.27		1.00	158.27 *
504862 THOMPSON, P#134442	KELLY CORNELL 2017 024445	396.62				396.62	22 78	4.00	423.40
204 WILSON ST	2017 024443	390.02				390.02	22.70	4.00	423.40 *
586971 THOMPSON, P#144581	MARY ELEANOR 2017 025401	38.05				20 NE	.58		38.63
1619 SWEPSONVILLE RD									
P#144305 VL S MAIN ST	2017 025402	18.96				18.96	.28		19.24
560841 THRONEBUR									57.87 *
	2017 024470	1.82			.18	2.00	.14		2.14 2.14 *
647709 TIENDA ME	XICANA LOS MOLO 2017 024472	CAJETES 163.80			16.38	180.18	10.35		190.53
598806 TINGEN, M									190.53 *
P#146680 808 BOWLING ST	2017 024491	274.43				274.43	15.79	4.00	294.22
635432 TORRALBA,	ALEJANDRO								294.22 *
	2017 024521	35.17			3.52	38.69	2.22		40.91 40.91 *
492998 TUCKER, B.	ARBARA ANN 2017 024617	24.57			2.46	27.03	1.54		28.57
653338 TURNER, A	NNETTE								28.57 *
·	2017 024626	32.35			3.24	35.59	2.06		37.65

TAXPAYER Name	e RANGE:			TO zzzzzz	ZZZZZZZZZZ:	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO	NAME	YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
EOOEEO	TWIN ODER	K PROPERTIES	TT 11.0							37.65 *
P#145723 501 S MAIN ST	•	2017 024636	120.11				120.11	3.60	4.00	127.71
		NICA RHONE								127.71 *
P#144495	OMERAII, MO	2017 024650	762.37				762.37	43.85	4.00	810.22
		OBBY L								810.22 *
P#146845 505 E ELM ST	·	2017 024698	113.43				113.43	6.52	4.00	123.95
		JEWEL D								123.95 *
107110		2017 024702 2017 024703	11.78 3.28			1.18	12.96 3.61	.76 .22		13.72 3.83 17.55 *
22864 P#171263 HANOVER RD	VARNER, NO	AH Z 2017 024711	102.65				102.65	5.90	4.00	112.55
651231	VEGA-RIVER	A, XIOMARA								112.55 *
P#146863 417 HILL ST		2017 024730	193.98				193.98	11.13	4.00	209.11 *
660408	VICE, DAVI	D RAY HEIRS	011 06				011 06	10 12	4 00	
1464 GANT RD		2017 024749	211.26				211.26	12.13	4.00	227.39
655634	VICKERS, J	ACQUELINE CLA	RE				12 07	.31		14.28
700 WARD ST		2017 024750	13.97				13.97	.31		14.28 *
495071 P#143998	VINCENT, J	ONATHAN 2017 024757	205 50				205 50	16.41	4.00	
1119 ROGERS F	RD	2017 024757	203.39				203.39	10.41	4.00	306.00 *
647414 D#144953	VINCENT, R	OGER DALE HEI 2017 024759	RS 148 84				148 84	8.58	4 00	
819 E GILBREA	ATH ST	2017 024739	140.04				140.04	0.30	4.00	161.42 *
481842	WALKER, JA	MIE NEAL	1 14			11	1 25	.08		1.33
		2017 024815 2017 024816	10.56			1.06	1.25 11.62	.68		12.30 13.63 *
72786	WALL, MONT	E O JR/BARBAR. 2017 024839					10.78	.62		11.40
270020		ILLIAM KEITH	10.76				10.76	.02		11.40 *
213029	·	2017 024865	5.92			.59	6.51	.38		6.89 6.89 *
496376 P#145679		, PROPERTIES 2017 024897	II LLC 526.69				526.69	30.28	4.00	560.97

CITY OF GRAHAM ACC	COUNTS RECEIVA	BLE REGISTER			2.06 DATE	07/03/2018	TIME 08:51:18	PAGE 0027
TAXPAYER Name RANGE:		TO zzzzzzz	ZZZZZZZZZ	ZZZZZZZZZ	ZZZZ			
TAXPAYER NO NAME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
909 WASHINGTON ST P#173242 2017 024898 909 C WASHINGTON ST	1,505.89				1,505.89	86.57	4.00	1,596.46
54269 WATKINS CHRISTOPHER ATT 2017 024909	ГҮ 1.14			.11	1.25	.08		2,157.43 * 1.33 1.33 *
29385 WATLINGTON, ERIC C P#134884 2017 024916 804 OAKLEY ST	302.57				302.57	17.40	4.00	323.97
42046 WHITE, JOSEPH JULIUS P#146432 2017 025019 1005 JEFFREYS ST	147.92				147.92	8.51	4.00	323.97 * 160.43
511398 WHITE, LINDA KAYE P#146904 2017 025020 413 LOUIS ST	83.05				83.05		4.00	160.43 * 87.05
597580 WHITEHEAD, KRISTIE S P#147374 2017 025032 705 LARRY AVE	200.18				200.18	11.50	4.00	87.05 * 215.68
P#147375 2017 025033 LARRY AVE	18.20				18.20	1.06	4.00	23.26
621034 WHITFIELD, TYRONE E JR 2017 025041	20.07			2.01	22.08	1.29		238.94 *
34383 WHITTEMORE, STEPHEN A P#152611 2017 025047 1104 NOAH RD	1,093.08				1,093.08	62.86	4.00	23.37 * 1,159.94
141675 WHITTEMORE, STEPHEN ATV 2017 025048	WOOD 25.25			2.53	27.78	1.61		1,159.94 * 29.39 29.39 *
596905 WILDER, JACOB JOEL 2017 025068	5.73			.57	6.30	.38		6.68 6.68 *
462151 WILLIAMS, JOEL LYNN HEI 2017 025098	IRS 4.55			.46	5.01	.30		5.31 5.31 *
98832 WILLIAMSON, VONDA L 2017 025127	35.17				35.17	2.00		37.17 37.17 *
454245 WILSON, BRIAN DOUGLAS 2017 025144	1.39			.14	1.53	.08		1.61 1.61 *
600862 WILSON, DALTON H HEIRS P#145482 2017 025146 213 WARD ST	399.06				399.06	22.93	4.00	425.99
502312 WILSON, GARY D 2017 025152	1.46			.15	1.61	.08		425.99 * 1.69

CITY OF GRAHAM ACCOUNTS RECEIVABLE REGISTER 2.06 DATE 07/03/2018 TIME 08:51:18 PAGE 0028

TAXPAYER Name RANG	Ε:		TO zzzzzz		ZZZZZZZZ	ZZZZ			
TAXPAYER NO NAI	ME YR RECEIPT	GENERAL	DOG	CAR	LATE	PRINCIPAL	INTEREST	COST	BALANCE
COOOL WITH GOVE	CARV R								1.69 *
68283 WILSON,	2017 025153	4.55			.46	5.01	.30		5.31 5.31 *
567164 WILSON, P#144019 139 WEBSTER RD	JEANENE A 2017 025155	223.60				223.60	12.87	4.00	240.47
P#144020 1009 TODD ST	2017 025156	247.72				247.72	14.25	4.00	265.97
37334 WILSON, P#135165 329 POPLAR ST	RALPH R 2017 025166	154.48				154.48	8.89	4.00	506.44 * 167.37 167.37 *
36188 WILSON, P#146796 422 E HARDEN ST	SEAWELL C 2017 025168	83.00				83.00	4.76	4.00	91.76 91.76 *
658168 WOODLIE	F, MELISSA IRENE 2017 025225	9.15			.92	10.07	.60		10.67 10.67 *
37498 WOODRUF! P#145662 215 W PARKER ST		256.68				256.68	14.78	4.00	275.46
382342 WOODS, 1									275.46 *
	2017 025227	19.61			1.96	21.57	1.23		22.80 22.80 *
5895 WOOTEN, P#135043 320 GILBREATH ST		295.77				295.77	17.02	4.00	316.79
P#146858 406 OAKGROVE DR	2017 025233	377.68				377.68	21.70	4.00	403.38
498065 YDG LLC									720.17 *
	2017 025281 2017 025282 2017 025284	45.42 1.43 5.00			4.54 .14 .50	49.96 1.57 5.50	2.85 .08 .31		52.81 1.65 5.81 60.27 *
644828 ZAMORA, P#134785 516 W ELM ST	WALT C 2017 025318	231.98				231.98	13.34	4.00	249.32 249.32 *
659641 ZELADA,	GERARDO BLADIMIE 2017 025336	R 28.62			2.86	31.48	1.83		33.31 33.31 *
664089 ZINN TA	YLORS ENTERPRISES 2017 025343 2017 025344 2017 025345 2017 025346	S INC 754.44 91.61 2.05 558.83				754.44 91.61 2.05 558.83			797.83 96.89 2.19 590.96 1,487.87 *

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CITY OF GRAHAM ACCOUNTS RECEIVABLE REGISTER 2.06 DATE 07/03/2018 TIME 08:51:18 PAGE 0029

TAXPAYER Name RANGE:

TO zzzzzzzzzzzzzzzzzzzzzzzzzzz

REAL TOTALS

TAXPAYER NO NAME YR RECEIPT GENERAL DOG CAR LATE PRINCIPAL INTEREST COST BALANCE

TOTAL FOR 2017 49,502.57 49,502.57 2,723.57 717.51 52,943.65

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CITY OF GRAHAM ACCOUNTS RECEIVABLE REGISTER 2.06 DATE 07/03/2018 TIME 08:51:18 PAGE 0030

PERSONAL TOTALS

TAXPAYER NO NAME YR RECEIPT GENERAL DOG CAR LATE PRINCIPAL INTEREST COST BALANCE

TOTAL FOR 2017 9,569.12 560.44 10,129.56 582.48 10,712.04

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CITY OF GRAHAM ACCOUNTS RECEIVABLE REGISTER 2.06 DATE 07/03/2018 TIME 08:51:18 PAGE 0031

TAXPAYER Name RANGE:

TO ZZZZZZZZZZZZZZZZZZZZZZZZZZZZ

REAL AND PERSONAL TOTALS

TAXPAYER NO NAME YR RECEIPT GENERAL DOG CAR LATE PRINCIPAL INTEREST COST BALANCE

TOTAL FOR 2017 59,071.69 560.44 59,632.13 3,306.05 717.51 63,655.69

CITY OF GRAHAM ACCOUNTS RECEIVABLE REGISTER 2.06 DATE 07/03/2018 TIME 08:51:18 PAGE 0032

SPECIAL DISTRICT TOTALS

DISTRICT DESCRIPTION DISTRICT NAME SPECIAL TAX

RECORDS READ RECORDS PROCESSED 17848 402



A Resolution of Commendation and Appreciation to Captain Steve McGilvray for His Service to the City of Graham and Awarding Him His Badge and Service Sidearm

WHEREAS, Captain Steve McGilvray diligently served the City of Graham Police Department from July 16, 1998 until July 31, 2018; and

WHEREAS, Steve retired as Police Captain from the City of Graham on July 31, 2018 with 20 years of service; and

WHEREAS, his wisdom, care, dedication in the areas of patrol, training and crime prevention has commanded the utmost respect from his colleagues and peers; and

WHEREAS, G.S. 20-187.2 provides that retiring members of municipal law enforcement agencies may receive, at the time of their retirement, the badge worn or carries by them during their service with the municipality; and

WHEREAS, G.S. 20-187.2 further provides that the governing body of the municipal law enforcement agency may, in its discretion, award to a retiring member the service sidearm of such retiring member; and

WHEREAS, it is the desire of the City Council to extend their deepest appreciation to Steve for the excellent time and service he has afforded the citizens of Graham and his fellow employees.

NOW, THEREFORE, BE IT RESOLVED by The City Council of the City of Graham, North Carolina that: Captain McGilvray Steve be commended for his outstanding public service to the City of Graham.

BE IT FURTHER RESOLVED THAT: The City Manager or his designee is hereby authorized in accordance with the provisions of G.S. 20~187.2 to transfer to Steve McGilvray the badge worn by him during his service with the Graham Police Department and his service sidearm, a Glock .45 caliber, Model 21, Serial Number GFZ472.

This the 7th day of August 2018.

Jerry Peterman, Mayor City of Graham

City of Graham Volunteer Board and Commission Application



The following application is used by the City Council to screen individuals interested in serving on a City advisory board or commission. To ensure that your application will receive full consideration, please answer all questions completely. For more information and details about each board, visit www.cityofgraham.com/government/boards

ibit www.icityorgi.unumicom/government/bourds	1 1 1/6/1/0000
Name Allene K. Massengill	Email Address all ene Am Dall a years
Home Address 114 Albright Me	Mailing Address // 4 Albright ItVE
Name Allene K. Massengill Home Address 114 Albright Ave City, State, Zip Graham, N.C. 27253	Email Address all ene 4mball a yanoo. Co. Mailing Address // 4 Albright Ave. City, State, Zip Graham, N.C. 27253
Home Phone <i>336-270-4262</i>	Alternate Phone 864 590-0122
Do you live inside the city limits of Graham? X	es No
Are you applying for reappointment to a board of comm	ission on which you are currently serving?
Yes No	
If yes, for which board or commission are applying for re	eappointment:
For new appointments, select the board(s) and/or commit (you may select more than one):	ission(s) for which you would like to be considered
Alamance County Library Committee (2 years)	Graham Sports Hall of Fame Committee (6 years)
Alcohol Beverage Control (3 years)	Historic Resources Commission (4 years)
Appearance Commission (3 years)	Planning Board/Board of Adjustment (3 years)
Canine Review Board (3 years)	Recreation Commission (3 years)
Historical Museum Advisory Board (3 years)	Tree Board (3 years)
Graham Housing Authority (5 years)	
Why do you wish to serve the City in this capacity? Descrived Contribute: I have tought school on my church as a feacher for the capacity as here.	ribe the experience, skills, and abilities that you A SO + YLAN, WORKER
vacation while as a gracher for	er phildren's dunday school,
vacation bible school & chair	he braver and contract
my daughter's brownie troop	and was the brades. How
ien a member ey, a Garden	and was the leader. How Club and new a K Club Recieved a muster of
rember of the Leornian Boo	K aluly Recieved a moster of
ucation and National Postoge	1 or 2 feet Early Childhard

Employment

Employer/Company Name Retired

Address

City, State, Zip

Job Title and Description of Responsibilities

Seacher

Civic Involvement

Please list the names of civic and volunteer organizations in which you currently hold membership and your position with that organization. Lances pending Secretary for The Learnian Book Club

Thank you for your interest in the City of Graham's advisory boards and commissions. Submit this application by email to: dsperry@cityofgraham.com, in person to: City Clerk's Office at 201 South Main Street, or by mail to: Attn: City Clerk P.O. Drawer 357, Graham, NC 27253 Applications will be kept on file for 3 years

RECEIVED

JUL 3 0 2018

CITY OF



Farm Services, Inc. 125 E Elm St. Graham, NC 27253

FARM SERVICES

Authorized Dealer

















June 26, 2018

Frankie Maness, City Manager City of Graham 201 S Main St Graham, NC 27253

Re: Downtown Graham DockDogs Festival

Dear Frankie,

This letter is to make a formal request for the approval of the event, Downtown Graham DockDogs. Attached is a schedule and a map showing the event we would like to have. This year we are happy to announce that we would like to raise money to benefit Special Olympics. We would like to request the following from the city:

- Approval of the event as a city sanctioned event
- Police staff for the event so that they can assist in the raising of funds and one staff member for security
- Street closure of E Elm St Friday at 6pm until Sunday at 5pm
- Barricades for street closure
- Trash Cans
- Bleachers from Parks & Rec

We will raise the funds to pay for the following:

- Dock Dogs Exhibition
- Promotion (radio ads, banners, social media, newspaper, etc.)
- 2 Portajohns
- Insurance (binder will be email to you)
- Hotel stays for Dock Dogs event staff
- Bands and entertainment

I think last year's event was very successful and I believe it was very well received and attended by our local community. We hope that you will be supportive of this event and be willing to assist us in raising money for this worthy cause. Thank you for your time and consideration.

Kind regards,

Jennifer Talley Vice President

DOWNTOWN GRAHAM DOCKDOGS

SAT - SUN SEPTEMBER 22-23, 2018 9AM - 4PM ON E. ELM ST

 p_{ecial} Join Graham Police Department in raising funds to benefit the Special Olympics



HEDULE OF EVENTS

Sat Sept 22

8-9:45am Onsite Registration

lumpics

Try DockDogs (Open to Beginners) 10am

Big Air Wave Competition 11am

EXTREME VERTICAL 3:30pm

Sun Oct 22

Onsite Registration 8-9am

9:30am Big Air Wave

Speed Retrieve 1pm

BIG AIR FINALS 3pm

\$15-\$30 fees to compete

- No Retractable Leashes Please
- You MUST pick up after your dog
- · No dogs with behavior issues
- · Rescue Pets available



Amphitheater Live Music & Demonstrations



1-40/1-85

Less than 1 mile from Interstate

DOG SHOW, TRAINING DEMO, HANDLER DEMO, CHILDREN RIDES, CRAFT VENDORS, FOOD TRUCKS
RAFFLE, LIVE ENTERTAINMENT FMI call 336-229-4225



um Tucci Salon Pet Grooming







 From:
 Frankie Maness

 To:
 Graham Cinema

 Cc:
 Darcy Sperry

Subject: Re: Dock Dogs Event Date - September 15-16, 2018

Date: Saturday, July 28, 2018 3:11:40 PM

Jennifer:

I'll double check for any conflicts on Monday, but can't think of one off the top of my head. We'll make the change for the street closure for the City Council Meeting.

Thanks,

Frankie

From: Graham Cinema <grahamcinema@triadbiz.rr.com>

Sent: Thursday, July 26, 2018 8:30:12 AM

To: Frankie Maness

Subject: Dock Dogs Event Date - September 15-16, 2018

There has been a change to the date for Dock Dogs that was beyond my control. I just got it confirmed with the event company for the week before. I really wanted the original date but there was nothing I could do about the conflict. I hope that this does not cause any issues on your part. Please let me know as I am signing the contract for the new date tomorrow. They are having the insurance binder issued tomorrow and I will send to you as soon as I receive it. I genuinely appreciate your support as this is a really big undertaking to coordinate. I'm praying for good weather. Please let me know if you need anything further.

Kind regards,

Jennifer Talley 336-229-4225



Virus-free. www.avg.com

July 24, 2018

Graham City Council Attn: Darcy Sperry Po Drawer 357 Graham, NC 27253

Re: Request for Ward Parking Lot

Dear Ms. Sperry,

I'm writing in follow-up to our previous discussion regarding our agency's request for the use of the Ward Parking Lot located on the corners of Harden and Maple Street. This parking lot is directly behind our agency located on 200 N. Main Street, Graham, NC.

Our Agency, The Family Center in Alamance, is a non-profit agency. Our mission is the prevention and treatment of child abuse and neglect. More specifically, our Respite Program, is a continuum of prevention services offered at the agency. The agency offers respite services in both Alamance and Orange County to decrease children in foster care, and prevent both new and reoccurring incidents of maltreatment.

The request for the use of the parking lot is to host an awareness respite event on Saturday, August 25, 2018 from 8am to 12pm. The event theme is "Stuff for Success." The event is open to the public and geared towards children ages 0-17 and their parents. The "stuff" distributed will be school supplies, provided by the agency, in which the children will "stuff" the items into their book bags in preparation for a successful school year. The parents will also be given "stuff" that will be inclusive of helpful tools in helping their children succeed in school.

The event will include game themed trunks decorated by our staff; performances by Rosebud Dance Studio; Daycare Providers; Girl Scouts Carolina Peaks; Piedmont Triad Council; Cotton Candy Vendor; Ice-Cream Vendor/Snow Cone Vendor; Licensed Art Therapist; and one Food Truck.

We're a dedicated and passionate group, and would be extremely respectful of the property. There will be numerous volunteers on-site the day of the event. The Graham Police Department and EMT Department will also be notified of the event. We feel the Ward Parking Lot will make for a wonderful location and would maximize an awareness of respite for our parents thereby decreasing the number of child abuse and neglect findings in our community.

Thank you in advance for your time and consideration. I look forward to hearing from you soon.

Sincerely,

Lisa R. McBroom, MBA Respite Supervisor/Lead Intensive Family Preservation Specialist The Family Center in Alamance 200 N. Main Street Graham, NC 27253 (336) 227-5601 Office (336) 639-0331 Mobile (336) 227-5603

lisamcbroom@exchangefcp.org

cc: Sarah Black, MFT, Director



SUBJECT:	RESOLUTION DESIGNATING OFFICIALS FOR LOCAL GOVERNMENT OPINIONS
PREPARED BY:	JEFF PRICHARD, CHIEF OF POLICE

REQUESTED ACTION:

Approve Resolution amending the contact information on file with the North Carolina Alcoholic Beverage Control Commission.

BACKGROUND/SUMMARY:

The Alcoholic Beverage Control Commission shall give notice of a permit application to the governing body of a City or County prior to issuing a retail ABC Permit. Designated Officials are expected to process this form within a reasonable period of time.

FISCAL IMPACT:

N/A

STAFF RECOMMENDATION:

Approval. Amending the contact information on file with the North Carolina Alcoholic Beverage Control Commission will make review and approval of application more efficient.

SUGGESTED MOTION(S):

I move to approve the Resolution amending contact information on file with the North Carolina Alcoholic Beverage Control Commission.

NORTH CAROLINA ALCOHOLIC BEVERAGE CONTROL COMMISSION

(919) 779-0700

Location: 400 E. Tryon Road Raleigh, NC 27610

Mail: 4307 Mail Service Center Raleigh, NC 27699-4307

RESOLUT	ION OF THE CITY O		, COUNTY OF
		REGARDING THE DESIGNATION OF	AN OFFICIAL TO
MAKE RI	ECOMMENDATIONS TO	THE NORTH CAROLINA ALCOHO	OLIC BEVERAGE
CONTROL	COMMISSION ON ABC	PERMIT APPLICATIONS.	
WHEREAS	S G.S.18B-904(f) authorize	es a governing body to designate an offic	ial, by name or by
		nearning the suitability of persons or location	•
and		Ç , 1	•
WHEREAS	S the City of _		, County of
		, wishes to notify the NC ABC	Commission of its
	as required by G.S.18B-90		
· ·	• •		
BE II THE	EREFORE RESULVED that	(Name of Official)	, Title or Position)
		orth Carolina Alcoholic Beverage Control	
•	•	of	
recommend	-		-
		_, regarding the suitability of persons and	locations for ABC
permits wit	hin its jurisdiction.		
BE IT FUR	RTHER RESOLVED THAT	Γ notices to the City of	, County
of		_, should be mailed or delivered to the office	ial designated above
	wing address:		C
	Mailing address:		
	<u>c</u>		
	Office location:		
	_		
	City:	, NC	
		Phone #:	
	•		
This the	downof	20	
Tills tile	day of	, 20	
	_	(Mayor/Chairman)	
Sworn to at	nd subscribed before me this	s the day of	. 20
~ om to an	and substitute of ore the time	any or	
		(Clerk)	



SUBJECT:	SURPLUS PROPERTY-516 W. ELM ST
PREPARED BY:	FRANKIE MANESS, CITY MANAGER

REQUESTED ACTION

Accept the highest offer and authorize the sale of surplus real property adjacent to 516 W. Elm Street to Walt C. Zamora.

BACKGROUND/SUMMARY

The City of Graham is the platted owner of a 120' Right of Way known as Graham Drive, which intersects with W. Elm Street. Much of this ROW, particularly the southern portion, is unused by Graham Dr. The City has received a written offer of \$5,000 and earnest money of \$500 from the adjoining landowner, Walt C. Zamora, to purchase approximately 0.23 acres of the unused ROW.



In April, the City Council approved the property as surplus and authorized a competitive sale via the upset bid process. No additional offers were received following notice of upset bids.

FISCAL IMPACT

Minimal. The offered price is \$5,000

STAFF RECOMMENDATION

Approval.

SUGGESTED MOTION(S)

I move we confirm the sale contract dated April 3, 2018, after receiving no upset bids, and authorize the City Manager, City Attorney and City Clerk to schedule the closing of the sale subject to the conditions as set forth in Section 4 of the Offer to Purchase and Contract submitted by Walt C. Zamora, and signed by the City Manager.

OFFER TO PURCHASE AND CONTRACT

WALT C. ZAMORA, as Buyer, hereby offers to purchase and THE CITY OF GRAHAM, A NORTH CAROLINA MUNICIPAL CORPORATION, Seller, upon acceptance of said offer and approval under N.C. Gen. Stat. § 160A-269 - upset bids and confirmation vote at a public meeting, agrees to sell and convey, all of that plot, piece or parcel of land described below, together with all improvements located thereon as is listed below (collectively referred to as the "Access Parcel"), upon the following terms and conditions:

- 1. REAL PROPERTY: Located in the City of Graham, County of Alamance, State of North Carolina, being known as and more particularly described as: approximately 12,500 square feet at the southern intersection of West Elm Street and Graham Drive, Graham, North Carolina (exact amount to be determined by a survey), also described as the "Access Parcel" as described in the attached letter dated 2/24/18 and Exhibits A and B attached thereto, incorporated herein by reference.
- 2. FIXTURES: The following items, if any, are included in the purchase price free of liens: any improvements and/or items attached or affixed to the Property, EXCEPT the following items: N/A
- 3. PURCHASE PRICE: The purchase price is \$5,000.00 (Five Thousand Dollars and Zero Cents) and shall be paid as follows:
 - \$500.00 EARNEST MONEY DEPOSIT with this offer by □ cash □ personal check □ bank check X certified check □ other: to be tendered to Seller as Escrow Agent ("Escrow Agent"), until the sale is closed, at which time it will be credited to Buyer, or until this contract is otherwise terminated. In the event: (1) this offer is not accepted; or (2) any of the conditions hereto are not satisfied, then all earnest monies shall be returned to Buyer. In the event of breach of this contract by Seller, upon Buyer's request, all earnest monies shall be returned to Buyer, but such return shall not affect any other remedies available to Buyer for such breach. In the event this offer is accepted and Buyer breaches this contract, then all earnest monies shall be forfeited upon Seller's request, but receipt of such forfeited earnest monies shall not affect any other remedies available to Seller for such breach.
 - (b) \$4,500.00 as a one-time payment, at closing.

4. CONDITIONS:

- (a) Access Parcel is sold "AS IS" as to condition. Buyer is fully aware of condition.
- (b) Any improvements or repairs shall be made by the Buyer, with no abatement to the price.
- (c) Buyer shall be entitled to full possession upon payment of \$5,000.00.
- (d) Title must be delivered at closing by SPECIALLIMITED WARRANTY DEED and (with limited warranties of Seller pursuant to title as vested in Seller), free of all encumbrances except: ad valorem taxes for the current year (prorated through the date of closing); utility easements, zoning restrictions (to be the same zoning status as contiguous property owned by the Buyer), and such other encumbrances as may be assumed or specifically approved by Buyer;
 - (2) Accurate Survey of the parcel being sold (paid by Buyer) leaving 15 feet along the southern boundary of Graham Drive, between West Elm Street and the rear lot line;
 - (3) Rear Lot line be configured to protect the riparian buffer of the wet weather stream in rear of lot;
 - (4) Erection of Fence by Buyer 1 foot inside of property line along Graham Drive;
 - (5) Neither Buyer or possessor of Access Parcel shall park outside of fence line along Graham Drive:
 - (6) Buyer agrees that the Access Parcel is or will be zoned B-2, General Business and that no junk cars shall remain outdoors upon the Access Parcel for any purpose;
 - (7) Any improvement of the Access Parcel must require an appropriate building permit and inspection by the Seller.

Buyer Initials V 2 Seller Initials:

- 5. PRORATIONS AND ADJUSTMENTS: Unless otherwise provided, the following items shall be prorated and either adjusted between the parties or paid at closing: *Ad valorem* taxes on Access Parcel shall be prorated on a calendar year basis through the date of closing.
- 6. CLOSING EXPENSES: Buyer shall pay for the survey and recording the Special Limited Warranty Deed and for preparation and recording of all instruments required to close. Seller shall pay for preparation of the Special Limited Warranty Deed and all other documents necessary to perform Seller's obligations under this agreement, and for excise tax (revenue stamps) as may be required by law.
- 7. EVIDENCE OF TITLE: Seller agrees to use their best efforts to deliver to Buyer as soon as reasonably possible after the acceptance of this offer copies of all title information in possession of or available to Seller, including but not limited to: copies of all documents necessary to effect transaction regarding Public Notice, compliance with relevant North Carolina General Statutes, and municipality's actions to sell said Access Parcel to Buyer.
- 8. LABOR AND MATERIAL: Seller shall furnish at closing an affidavit and indemnification agreement in form satisfactory to Buyer showing that all labor and materials, if any, furnished to the Access Parcel within 120 days prior to the date of closing have been paid for and agreeing to indemnify Buyer against all loss from any cause or claim arising therefrom.

9. PROPERTY DISCLOSURE AND INSPECTIONS:

(a)	Proper	ty Disclosure:					
		Buyer has received a signed copy of the Residential Property Disclosure Statement prior to the signing of this Offer to Purchase and Contract.					
		Buyer has NOT received a signed copy of the Residential Disclosure Statement prior to the signing of this Offer to Purchase and Contract and shall have the right to terminate or withdraw this contract without penalty upon receipt of the Residential Property Disclosure Statement provided such termination or withdrawal notice is hand delivered or mailed to Seller or Seller's Agent within three days following receipt of same.					
	<u>X</u>	Exempt from Residential Property Disclosure Statement.					
		The Property is residential and was built prior to 1978 (Attach Lead-Based Paint Hazards Disclosure Addendum.)					
(b)	Proper	ty Inspection: Buyer is aware of condition of Access Parcel and purchases "AS IS."					
(c)	Wood Destroying Insects: Buyer is aware of condition of Access Parcel and purchases "AS IS."						
(d)	Repairs: Buyer is aware of condition of Access Parcel and purchases "AS IS."						
(e)		Acceptance: CLOSING SHALL CONSTITUTE ACCEPTANCE OF EACH OF THE SYSTEMS, ITEMS AND CONDITIONS LISTED ABOVE IN ITS THEN EXISTING					

10. REASONABLE ACCESS: Seller will provide reasonable access to Buyer or Buyer's representatives for the purposes of appraisal, inspection, and/or evaluation. Buyer may conduct a walk-through inspection of the Access Parcel prior to closing.

CONDITION UNLESS PROVISION IS OTHERWISE MADE IN WRITING.

11. CLOSING: Closing shall be defined as the date and time of recording of the Special Limited Warranty Deed. All parties agree to execute any and all documents and papers necessary in connection with closing and transfer of title on or before the expiration of 60 days following the confirmation vote of the sale agreement by the Graham City Council under N.C. Gen. Stat. § 160A-269, at a place designated by Buyer. The deed is to be made to Walt C. Zamora.

Buyer Initials <u>L</u>

Seller Initials: Fr

- 12. POSSESSION: Unless otherwise provided herein, possession shall be delivered at closing.
- 13. OTHER PROVISIONS AND CONDITIONS: See Paragraph 4(d)(1)-(7) inclusive, incorporated herein by reference.
- 14. RISK OF LOSS: The risk of loss or damage by fire or other casualty prior to closing shall be upon Seller. If the improvements on the Access Parcel are destroyed or materially damaged prior to closing, Buyer may terminate this contract by written notice delivered to Seller or Seller's agent and all deposits (if any) shall be returned to Buyer. In the event Buyer does not elect to terminate this contract, Buyer shall be entitled to receive, in addition to the Property, any of the Seller's insurance proceed payable on account of the damage or destruction applicable to the Property being purchased.
- 15. ASSIGNMENTS: This contract may not be assigned without the written consent of all the parties, but if assigned by agreement, then this contract shall be binding on the assignee and their heirs and successors.
- 16. PARTIES: This contract shall be binding upon and shall inure to the benefit of the parties i.e., Buyer and Seller and their heirs, successors and assigns. As used herein, words in the singular include the plural and the masculine includes the feminine and neuter genders, as appropriate.
- 17. SURVIVAL: Ifany provision herein contained which by its nature and effect is required to be observed kept or performed after the closing, it shall survive the closing and remain binding upon and for the benefit of the parties hereto until fully observed, kept or performed. See Paragraph 4(d)(1)-(7) inclusive, incorporated herein by reference, which shall survive the closing and will remain binding upon and for the benefit of the parties hereto until fully observed, kept or performed.
- 18. ENTIRE AGREEMENT: This contract contains the entire agreement of the parties and there is no representation, inducements or other provisions other that those expressed herein. All changes, additions, deletions hereto must be in writing and signed by all parties.
- 19. EXECUTION: This offer shall become a binding contract when signed by both Buyer and Seller. This contract is executed under seal in signed duplicate originals, which together constitute one and the same instrument, with a signed original being obtained by each party.

Buyer acknowledges having made an on-site personal examination of the Access Parcel prior to making this offer.

Date: 3/27/18

Date: 4-3-18

Buyer: Walt C. Zamora

Date: 5 Column Municipal Corporation

Date: 5 Column Municipal Corporation

Date: 6 Column Municipal Corporation

Printed Name of Duly Authorized Agent of The City of Graham, A North Carolina Municipal Corporation

Buyer Initials _ _ _ _

Seller Initials:

Law Offices of James Hunt Johnson 106-B South Maple Street Graham, NC 27253-2812

February 24, 2018

Attn: Mr. G. Keith Whited, Esq.
Whited Doby & Ray Attorneys at Law
Post Office Box 1683
Burlington, NC 27215
Via Regular U.S. Mail
Via Email to: kwhited@cityofgraham.com & keith@whitedlaw.com

Re:

Confirmation of Intent to Bid for Purchase of Access Parcel

Contiguous to Graham Drive and Gene's Automotive Service &

Repair for Five Thousand Dollars and Zero Cents (\$5,000.00)

Our Clients:

Walt C. Zamora and Alton Eugene ("Gene") Myrick, d/b/a Gene's

Automotive Service & Repair

Our File No.:

194-B-001

Dear Keith:

Thank you for taking the time to speak with me over the last few months regarding the above referenced property, being that certain strip of land used for access to his place of business by my Client Alton Eugene ("Gene") Myrick, d/b/a Gene's Automotive Service & Repair and containing a shed, driveway, and a gravel parking area (herein the "Access Parcel"). The Access Parcel is contiguous to Graham Drive. It is also contiguous to the real property and improvements commonly known as is Lots 13 and 14 in Block "O" of Plat Book 2 at Page 85 of the Alamance County Register of Deeds, Alamance County Parcel ID No. 134785, GPIN No. 8874856025, as all of 516 West Elm Street, Graham, North Carolina, zip code 27253-2117; and most commonly known as the location of Gene's Automotive Service & Repair (herein the "Gene's Auto Parcel"). My Client Walt C. Zamora is the fee owner of the Gene's Auto Parcel.

Both Graham Drive and the Gene's Auto Parcel are more fully described by metes and bounds in that certain Plat titled as "Property of L. Banks Holt Manufacturing Company" dated July of 1926 and recorded in Plat Book 2 at Page 85 of the Alamance County Register of Deeds, a copy of which is attached hereto as **Exhibit A**. The Access Parcel is part of the approximately 120 foot wide right of way of "Graham Drive" as appearing in the same. Both the Access Parcel and Gene's Auto Parcel are shown in a more recent survey by Carolina Cornerstone Surveying and Land Design dated May 23, 2017 and attached hereto as **Exhibit B**.

It is my understanding that The City of Graham maintains Graham Drive. While Plat Book 2 at Page 85 shows dedication of a right of way with a width of 120 feet, the actual longstanding "on the ground" boundaries of the surfaced and maintained Graham Drive are far less than 120 feet. The Access Parcel has been in continual use by my Clients for approximately 10 years. Furthermore, the Access Parcel has been used by predecessors in title for ingress, egress, and

regress to automotive repair and service facilities for many, many years. My Clients wish to continue to use the Access Parcel, subject to and in compliance with applicable zoning rules and regulations. They have made extensive plans for renovations and improvements to the Access Parcel and the Gene's Auto Parcel conditioned upon their ability to acquire title to both properties. Accordingly, we have discussed the possibility of a proposal by the City of Graham to permanently close the unused portion of Graham Drive pursuant to N.C. Gen. Stat. § 160A-299 or another statutorily prescribed method as a potential resolution of this matter. My Client Walt C. Zamora has expressed to me his desire to purchase the Access Parcel for the sum of Five Thousand Dollars and Zero Cents (\$5,000.00) and is confirming the same in writing by this letter. Thus, please accept this letter as confirmation that my Client Walt C. Zamora (as the fee owner of the Gene's Auto Parcel) intends to offer a bid of Five Thousand Dollars and Zero Cents (\$5,000.00) for the purchase of the Access Parcel if such an opportunity arises.

If you have any questions please do not hesitate to contact me. My direct telephone line is 336-570-9830, cell is 919-260-4498, and my email address is jhj629@gmail.com. Thank you for your continued assistance with this matter.

Very truly yours,

James Hunt Johnson, Esq.

Attorney at Law

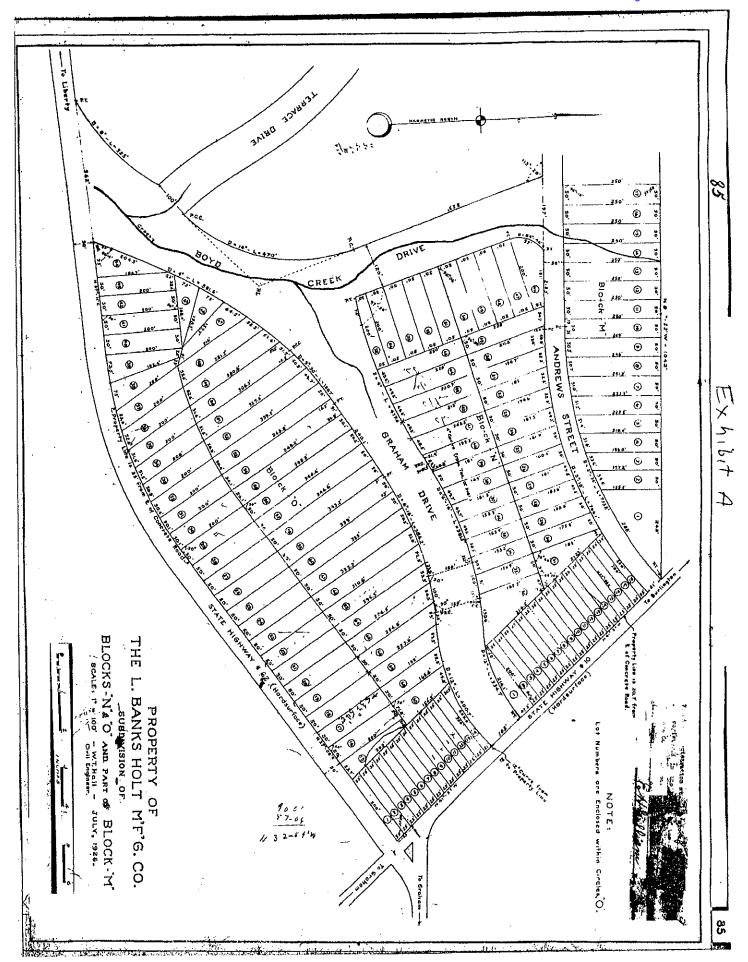
Walt C. Zamora

by James Hunt Johnson, Esq.

Walt C. Zamora by and

Attorney at Law

Enclosures



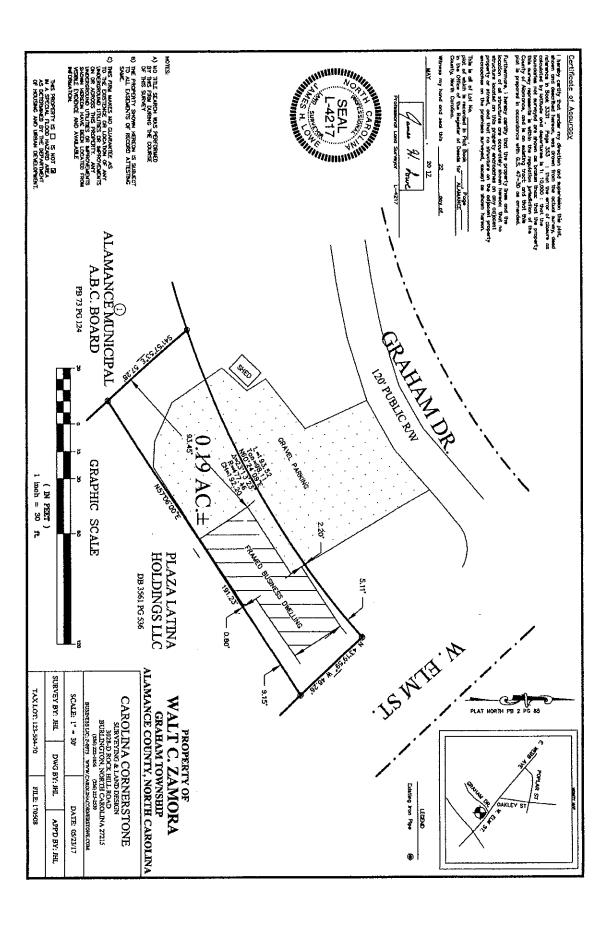


Exhibit B



SUBJECT:	ROGERS ROAD SPEED LIMIT
PREPARED BY:	DARBY TERRELL, ADMINISTRATIVE INTERN

REQUESTED ACTION:

Approve the Ordinance Declaring a 40 MPH Speed Zone on Rogers Road (SR 2309) a Point 0.05 Mile South Of Lacy Holt Road (SR 2317) and Moore Street (SR 2433) and Concur with Repealing State Ordinances 1000823 and 1000825.

BACKGROUND/SUMMARY:

The NCDOT is requesting that the City concur with their recommendation to enact a 40 MPH speed zone between Moore Street and Lacy Holt Road on Rogers Road. The NCDOT discovered that existing ordinances overlap with each other and do not reference the current city limits. So they are requesting we rewrite them to include the current city limits. The proposed ordinance would repeal previously adopted ordinances that are in conflict.

FISCAL IMPACT:

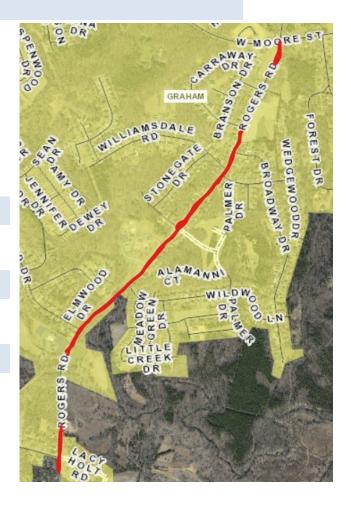
None

STAFF RECOMMENDATION:

Approval.

SUGGESTED MOTION(S):

I move we approve the Ordinance Declaring a 40 MPH Speed Zone on Rogers Road (SR 2309) a Point 0.05 Mile South of Lacy Holt Road (SR 2317) and Moore Street (SR 2433), and Concur with Repealing State Ordinances 1000823 and 1000825.



ORDINANCE DECLARING A 40 MPH SPEED ZONE ON ROGERS ROAD (SR 2309) BETWEEN A POINT 0.05 MILE SOUTH OF LACY HOLT ROAD (SR 2317) AND MOORE STREET (SR 2433)

WHEREAS, G.S. 20-141(f) allows a City to determine that a higher maximum speed than those set forth in subsection G.S. 20-141(b) is reasonable and safe; and

WHEREAS, NCDOT has determined, upon the basis of an engineering and traffic investigation, a reasonable and safe speed limit of 40 MPH for a section of Rogers Road (SR 2309) between a point 0.05 miles south of Lacy Holt Road (SR 2317) and Moore Street (SR 2433).

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Graham that: The City Council concurs with the reasonable and safe speed limit of a 40 MPH Speed Zone on Rogers Road between Lacy Holt Road (SR 2317) and Moore Street (SR 2433) and Concurs with Repealing State Ordinances 1000283 and 1000285.

BE IT FURTHER ORDAINED that this proposed speed limit shall become effective when the Department of Transportation has passed a concurring ordinance and signs are erected giving notice of the authorized speed limit.

Adopted this 7 th day of August 2018.	
	Mayor Jerry Peterman
Attest:	



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ROY COOPER GOVERNOR

JAMES H. TROGDON, III SECRETARY

June 21, 2018

Frankie Maness Town Manager 201 South Main Street Graham, NC 27253

Dear Mr. Maness:

This is in reference to rewriting some municipal speed limit ordinances on SR 2309 (Rogers Road) in Graham, Alamance County. After reviewing the existing 40-mph ordinances between Moore Street and the Graham City limits, I discovered that the old ordinances overlapped and needed to be rewritten with the current city limits referenced. We are also going to extend the 40-mph speed limit ordinance further south beyond the current ending point with a rural 40-mph ordinance after a recent study of Rogers Road at Lacy Holt Road.

Attached is the original documents of "Certification of Municipal Declaration to Repeal Speed limits and Request for Concurrence" and "Certification of Municipal Declaration to Enact Speed Limits and Request for Concurrence." After your council has passed the necessary ordinances, please send me the original notarized documents.

Sincerely,

Mark W. Aldridge

Mach W. Cellelige

Deputy Division Traffic Engineer

MWA/mwa

Atta:

cc: Dawn M. Mcpherson, Division Traffic Engineer

Certification of Municipal Declaration To Enact Speed Limits and Request for Concurrence

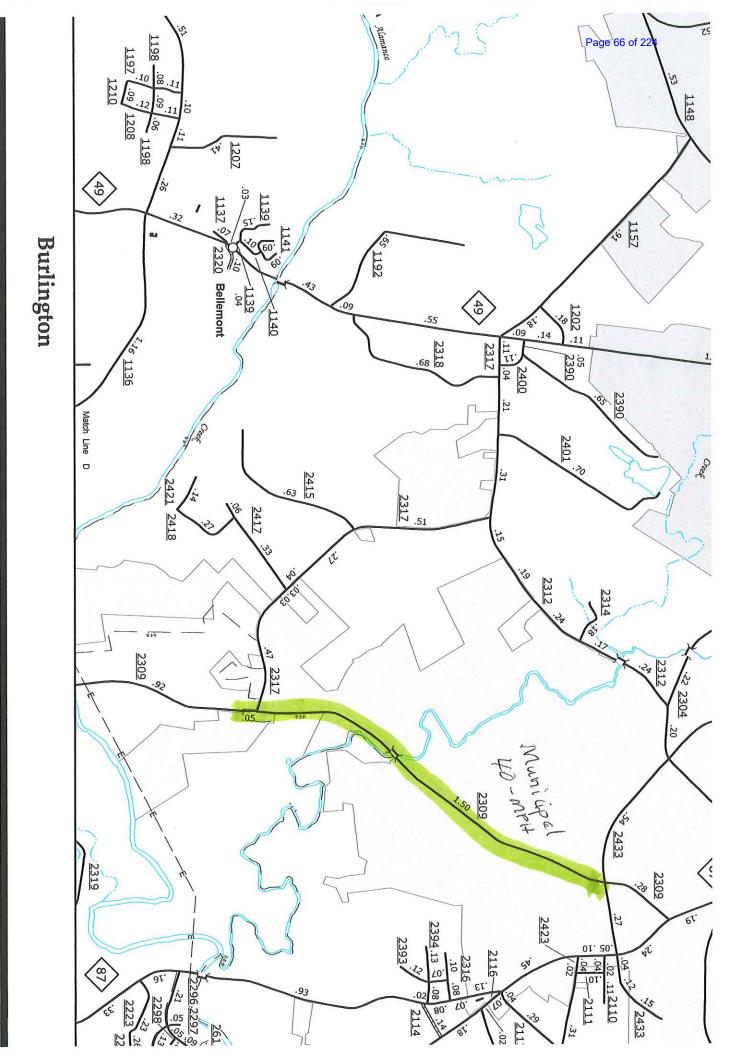
Concurring State Ordinance Number: 1073679 County: ALAMANCE Municipality: GRAHAM Division: 7 Type: Municipal Speed Zones Car: 40 MPH Truck: 40 MPH Road: SR 2309 Description: Between a point 0.05 mile south of SR 2317 (Lacy Holt Road) and SR 2433 (Moore Street). **Municipal Certification** I, ______, Clerk of ______, do hereby certify that the municipal governing body, pursuant to the authority granted by G.S. 20-141(f), determined upon the basis of an engineering and traffic investigation and duly declared, on the ______day of ______, 20_____, the speed limits as set forth above on the designated portion of the State Highway System, which shall become effective when the Department of Transportation has passed a concurring ordinance and signs are erected giving notice of the authorized speed limit. The said municipal declaration is recorded as follows: Page:_____ Ordinance Number: _____ Minute Book: In witness whereof, I have hereunto set my hand and the municipal seal this _____ day of _____, 20____. (municipal seal) (signature) **Department of Transportation Approval** Division: Title: _____ Date:

Certification of Municipal Declaration To Repeal Speed Limits and Request for Concurrence

Concurring State Ordinance Number: 1000283 Municipality: GRAHAM County: ALAMANCE Division: 7 Type: Municipal Speed Zones 40 MPH Truck: 40 MPH Car: Road: SR 2309 Description: SR 2309 (Rogers Road) from the corporate limit of Graham, a point 0.27 mile northof SR 2317 (Lacy Holt Road), north to SR 2433 (Moore Street). **Municipal Certification** _____, Clerk of ______, do hereby certify that the municipal governing body, pursuant to the authority granted by G.S. 20-141(f), determined upon the basis of an engineering and traffic investigation and duly declared, on the ______ day of ______, 20_____, the repeal of speed limits as set forth above on the designated portion of the State Highway System, which shall become effective when the Department of Transportation has passed a concurring ordinance and signs are erected giving notice of the authorized speed limit. The said municipal declaration is recorded as follows: Page: Ordinance Number: Minute Book: In witness whereof, I have hereunto set my hand and the municipal seal this _____ day of ______, 20_____. (municipal seal) (signature) **Department of Transportation Approval** Title: Date: _____

Certification of Municipal Declaration To Repeal Speed Limits and Request for Concurrence

Concurring State Ordinance Number: 1000285 Division: 7 County: ALAMANCE Municipality: GRAHAM Type: Municipal Speed Zones Road: SR 2309 Car: 40 MPH Truck: 40 MPH Description: SR 2309 (Rogers Road) from the corporate limit of Graham at 0.07 mile south of SR 2317 (Lacy Holt Road) north to the corporate limits of Graham, a point 0.07 mile north of SR 2317 (Lacy Holt Road). **Municipal Certification** I, ______, do hereby certify that the municipal governing body, pursuant to the authority granted by G.S. 20-141(f), determined upon the basis of an engineering and traffic investigation and duly declared, on the ______ day of ______, 20_____, the repeal of speed limits as set forth above on the designated portion of the State Highway System, which shall become effective when the Department of Transportation has passed a concurring ordinance and signs are erected giving notice of the authorized speed limit. The said municipal declaration is recorded as follows: Minute Book: _____ Page:____ Ordinance Number: In witness whereof, I have hereunto set my hand and the municipal seal this _____ day of ______, 20_____. (signature) (municipal seal) **Department of Transportation Approval** Title: Date: ____ Title: _____ Date: _____





SUBJECT:	RESOLUTION TO CONTINUE THE TRAFFIC SAFETY PROJECT CONTRACT WITH THE GOVERNOR'S HIGHWAY SAFETY PROGRAM
PREPARED BY:	DARBY TERRELL, ADMINISTRATIVE INTERN

REQUESTED ACTION:

Adopt the Resolution allowing the City to continue the contract with the Governor's Highway Safety Program for the dedicated traffic enforcement unit.

BACKGROUND/SUMMARY:

In the year 2017, the Council approved the Governor's Highway Safety Program Grant in order to provide the City with a dedicated traffic enforcement team to address the growing traffic the City of Graham is witnessing. To allow the City to continue this program and receive financial support from the State, Council should approve this year's Resolution for the Governor's Highway Safety Program.

FISCAL IMPACT:

The City of Graham is required to appropriate \$22,266.00 or 30%, as a match to the \$51,954.00 in Federal funding through the Governor's Highway Safety Program to cover the personnel and direct costs in establishing a dedicated highway safety unit. The City of Graham is required to maintain the personnel in subsequent years with declining support from the grant. Year 3 will require a 50% match while year 4 and beyond is 100% the responsibility of the City. No budget amendment is required as the funds were appropriated in the FY 2018-2019 Budget.

STAFF RECOMMENDATION:

Approval. Based on the growing nature of the City of Graham, this is still a valuable resource to the Police Department in the eye of public safety.

SUGGESTED MOTION(S):

I move we adopt the Resolution allowing the City of Graham to continue with the contract with the Governors Highway Safety Program.

RESOLUTION TO APPROVE AND CONTINUE THE TRAFFIC SAFETY PROJECT CONTRACT WITH THE GOVERNOR'S HIGHWAY SAFETY PROGRAM

WHEREAS, The Graham Police Department has completed an application contract for traffic funding; and

WHEREAS, The City of Graham has thoroughly considered the problem identified and has reviewed the project as described in the contract;

THEREFORE, NOW BE IT RESOLVED by the City of Graham in open meeting assembled in the City of Graham, North Carolina, this 7TH day of August, 2018 as follows:

- 1. That the project referenced above is in the best interests of the Governing Body and the general public; and
- 2. That B.T. Edwards (Sergeant) is authorized to file, on behalf of the Governing Body, an application contract in the form prescribed by the Governor's Highway Safety Program for federal funding in the amount of \$51,954.00 to be made to the Governing Body to assist in defraying the cost of the project described in the contract application; and
- 3. That the Governing Body has formally appropriated the cash contribution of \$22,266.00 as required by the project contract; and
- 4. That the Project Director designated in the application contract shall furnish or make arrangement for other appropriate persons to furnish such information, data, documents and reports as required by the contract, if approved, or as may be required by the Governor's Highway Safety Program; and
- 5. That certified copies of this resolution be included as part of the contract referenced above; and
- 6. That this resolution shall take effect immediately upon its adoption.

DONE AND ORDERED in an open meeting by

	Mayor Jerry Peterman
Attest:	



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ROY COOPER GOVERNOR JAMES H. TROGDON, III SECRETARY

July 10, 2018

Benjamin Edwards GRAHAM POLICE DEPT 216 S MAPLE ST GRAHAM NC 27253-2925

Application #: 1000006192

Program: GHSP2019-PERSONNEL/EQUIP

Project: GRAHAM POLICE DEPT

Ref: Application Approval

Dear Benjamin Edwards,

Congratulations! The NC Governor's Highway Safety Program (GHSP) has approved your agency to begin the next phase of GHSP's FY 2019 funding process.

This phase allows your agency to complete a grant agreement with NC GHSP to provide the outcomes outlined in the final grant application. Although your application has been approved, this does not assure funding. Final approval of funds will not be made until late September, once your Agreement is finalized.

The next step of the funding process is the submission of several key documents via the Grants Management System. Please contact your Highway Safety Specialist if you have any questions about completing these documents.

The GHSP appreciates your dedication and contribution to highway safety.

Sincerely,

Mark Ezzell Director, GR

Telephone: (919) 814-3650

Page 70 of 224 North Carolina Governor's Highway Safety Program Traffic Safety Project Contract – Form GHSP-01 SECTION A - GENERAL INFORMATION 1. Agency: 4. Contact Person for Agency: GRAHAM POLICE DEPT Benjamin Edwards 2. Agency Address: 5. Telephone Number: 216 S MAPLE ST +1 (336) 570-6711 GRAHAM, NC 27253-2925 6. Cell Phone: 336-266-1646 3. Physical Location of Agency * 7. Email of Contact Person 216 S Maple Street Graham, NC 27253 bedwards@cityofgraham.com 8. Federal Tax ID Number / Type of Agency 9. Project Year Federal Tax ID Number: *56-6001234 O New Continuation DUNS No: * 02-968-3570 Year: 0 1 County: *ALAMANCE COUNTY 10. Allocation of Funding * Type of Agency State O Non-Profit Federal % 70.00 Local % 30.00 County County C Higher Education Municipality Hospital 11. Project Title: * 2019 Graham PD Traffic Safety Project

		Source of Funds			
12. Budget	Total Project Amount	Federal Amount	State/Local Amount		
Personnel Costs	\$68,564.00	\$47,995.00	\$20,569.00		
Contractual Services					
Commodities Costs					
Other Direct Costs	\$5,656.00	\$3,959.00	\$1,697.00		
Indirect Costs					
Total Project Costs	\$74,220.00	\$51,954.00	\$22,266.00		
13. Specify How Non-Federa Graham Police Department (
Project Number:	CF	FDA#: 20.			
	We	ork Type:			

SECTION B - DESCRIPTION OF PROJECT

Statement of Problem (_Provide detailed information of the highway safety problems in your area to be addressed through this project. Include countywide crash data for the last three years and any other relevant information to validate the statements. For more detailed information see "How to write an effective traffic safety project" located at:

https://connect.ncdot.gov/municipalities/Law-Enforcement/Pages/Law-Enforcement-Reporting.aspx)

The City of Graham has approximately 15,000 residents and covers 10 square miles. As the central point and county seat of Alamance County, the City of Graham experiences a high volume of traffic on a daily basis. Graham has two combined interstates (I-40 and I-85) and three NC routes (NC-49, NC-54 and NC-87) that are the arteries of our city and county. Graham continues to grow in both size and population. In 2016 we reported that, one 200 unit apartment complex opened and 761 single family residences and 272 apartment units were being constructed. Of those, the 272 apartment units have opened and the single family units are still being constructed. As of this date one of the above apartments that opened, now at capacity, is now constructing another 240 units. This past year the city approved another 288 unit apartment to be constructed which plans to start construction soon. The planning department regularly fields inquiries about potential builds and expect more to come. Recently the City of Graham downtown has become revitalized. With this, four new bar/grill establishments, specialty microbreweries and specially alcohol businesses are scheduled to open this year. The Graham Police Department has 38 sworn

officers with 20 assigned to general patrol. The agencies only special unit or traffic enforcement team is the current GHSP funded officer who addresses our growing traffic needs. Our patrol officers are tasked with many different duties and responsibilities, and traffic safety is just one of them. Often, officers are not able to concentrate their efforts on reducing crashes or enforcing traffic law violations due to a high level of calls for service. In 2017 our calls for service were 25,163 which is a 14.7% increase from 2016.

Alamance County is currently ranked 25th within the state in the number of fatal crashes. The City of Graham maintained a consistent number of crashes in 2015-2017 with an average of 730 crashes investigated. Of those investigated, there was a 35% increase of crashes causing injury between 2015 and 2017, with an average of 143. Also our county is ranked 12th for young drivers (15-24 years of age) involved in serious injury and ranked 17th for total young driver crashes.

The Graham Police Department is seeking funding to create/maintain a dedicated traffic enforcement unit to focus on the reduction of young driver crashes, occupant injuries and speed related crashes in the City of Graham and surrounding areas. This unit will work closely with the Burlington Police department's traffic unit and the Alamance County Sheriff's special operations unit along with the other agencies that need our assistance. All county law enforcement agencies support the Graham Police Department and our efforts to make the streets safer for all.

Additional Equipment Requested

Checkpoint signs are to be used at our many checkpoints. This equipment was not foreseen and would assist in keeping a safe checkpoint environment.

The City of Graham and its governing body support the Police Department in its efforts to make the streets and highways safer. The City of Graham's current financial situation cannot support the entire immediate addition of a traffic safety and education unit needed to meet the goals and solutions of this project. It is, however, able to plant the seed of assistance from a resource such as GHSP that shares the same views and goals as the city and its citizens. The City of Graham plans to grow this seed and maintain this team in the years to come. Over the past three years the Graham Police Department has maintained 100 percent GHSP reporting and is an active participant of GHSP events.

In-state travel money will be used to attend the Traffic Safety Conference and other traffic-safety related training/conferences. Out-of-state travel money will be used to attend the Lifesavers conference in Kentucky.

To be completed by law enforcement				
Provide the agency's number of sworn officers				
Does the agency currently have a dedicated traffic or DWI unit?			No 📵	
If a dedicated traffic or DWI unit exists, how many officers are assigned to the unit?			13	
For applicants requesting enforcement of Information can be located at:	grants, please provide the following county fatality rankings:			
https://connect.ncdot.gov/municipalities/Law-Enfor	rcement/Pages/Law-Enforcement-Reporting.aspx)			
Overall Fatality Ranking:	tality Ranking: 25			
Alcohol Fatality Ranking:	26			
Unrestrained Fatality Ranking:	estrained Fatality Ranking: 17			
Coood Doloted Catalities	23			
Speed Related Fatalities:		12 (Young Drivers Involved in Serious Injuries) / 17 (Young Driver Crashes)		

years. Year 2017 Occupant Protection Citations 286 **DWI Citations** 84 Speed Citations 568 Year 2016 Occupant Protection Citations 74 **DWI Citations** 63 Speed Citations 504 Year 2015 173 DWI Citations Occupant Protection Citations 85 Speed Citations 456

Goals and Objectives _(Provide at least one SMART (Specific, Measurable, Attainable, Realistic and Timely) goals and objectives. For more detailed information see "How to write an effective traffic safety project" located at:

https://connect.ncdot.gov/municipalities/Law-Enforcement/Pages/Law-Enforcement-Reporting.aspx)

Goal #1: To decrease traffic-related injuries in the City of Graham by 15 percent from the 2015-2017 calendar year average of 143 injuries to 122 injuries during the fiscal year October 1, 2018 to September 30, 2019.

- Objectives: Identify the top 3 high crash locations and conduct targeted enforcement efforts a minimum of four times a week.
 - Participate and report in all GHSP and national highway safety campaigns. (Including, but not limited to Booze It & Lose It, Click It or Ticket, Child Passenger Safety, Distracted Driving Awareness, Speed a Little, Lose a lot, etc.). This will be accomplished through increased high visibility enforcement as appropriate.
 - · Conduct or participate in two outreach/educational traffic safety events each quarter.
 - · Coordinate or participate in a minimum of one multi-agency traffic enforcement activity per month.
 - · Meet quarterly with local and state DOT engineers to discuss crash causes in high crash locations.
 - · Conduct/Participate in one CPS checking station every quarter

Goal #2:

Reduce the number of young (15-24) driver-involved crashes in the City of Graham by 20% percent from the 2015-2017 calendar year average of 109 crashes to 87 crashes during the fiscal year October 1, 2018 to September 30, 2019.

- Objectives: Conduct three highway safety outreach/educational events focused on teens/young drivers each quarter.
 - Conduct or participate in three school zone enforcement operations each month.
 - · Participate and report in all GHSP and national highway safety campaigns, especially those focused on youth related highway safety issues.

Goal #3:

To reduce the number of speed-related crashes in the City of Graham by 30 percent from the 2015-2017 calendar year average of 31 crashes to 22 crashes during the fiscal year October 1, 2018 to September 30, 2019.

- Objectives: Increase the number of speeding citations by 50 percent from the 2017 calendar year of 568 to 852 during the fiscal year October 1, 2018 to September 30, 2019.
 - · Conduct targeted speed enforcement efforts a minimum of four times a week.
 - · Obtain two speed measuring instruments to increase our total number of units (radar/lidar time distance) on the road from 24 to 26 units.
 - · Participate and report in all GHSP and national highway safety campaigns focused on speeding (including, but not limited to the Speed a Little, Lose a lot campaign). Full campaign participation will be accomplished through increased high visibility enforcement.
 - · Contact local media outlets with information about enforcement initiatives, educational events or other traffic safety topics one time a quarter.

Below are the 5-year goals of the NC Governor's Highway Safety Program (GHSP). To be eligible for funding, your traffic safety project should match one or more of the GHSP goals. Check all that apply.

- Reduce NC's traffic-related fatalities by 25% from the 2008-2012 average of 1,317 to 988 by 2020.
- Reduce NC's alcohol-related fatalities by 35% from the 2008-2012 average of 386 to 251 by 2020.
- Reduce NC's unrestrained fatalities by 30% from the 2008-2012 average of 407 to 285 by 2020.
- Reduce NC's speed-related fatalities by 25% from the 2008-2012 average of 479 to 359 by 2020.
- Reduce NC's young driver-involved fatal crashes by 30% from the 2008-2012 average of 196 to 137 by 2020.
- Reduce NC's motorcycle fatalities by 25% from the 2008-2012 average of 177 to 133 by 2020.
- Mincrease NC's seat belt usage rate 4.4 percentage points to 95% by 2020.

SECTION C - BUDGET DETAIL

_	sonnel Costs	Colony
#	Personnel Position	Salary
1	Team Leader	\$50,960.0
2		
3		
4		
5		
6		
7		
8		
9	×	
10		
		Total Salaries Cost: \$50,960.0

#	Personnel Fringe Benefits	Cost
1	Team Leader	\$17,604.00
2		
3		
4		
5		
6		
7		
8		
9		
10		
	Total Fringe Benefits Cost:	\$17,604.00
	Total Personnel Costs:	\$68,564.00
Cor	ntractual Services	
#	Contractual Service To Be Provided	Cost
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		L
	Total Contractual Services:	
Cor	mmodities Costs	
	Commodities	Cost
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
	Total Commodities Cost:	
Oth	ner Direct Costs	

#	Equipment	Quantity	Cap Amount	Cost
1	Set of (3) Checkpoint Signs with Stands	1	\$1,200.00	\$1,200.00
2				
3				
4				
5				
6				
7				
8				
			ipment Cost	\$1,200.00
#	Other Items and Equipment Direct Cost: (Cost Limit	ted to Less Than \$5000 Per l	tem)	Cost
1	Wireless Internet Service			\$456.00
2				
3				
4				
5				
6				
7				
8				
	Total	Other Items and Equipment	Direct Cost:	\$456.00
#	Travel			Cost
1	In-State Travel			\$1,500.00
2	Out-of-State Travel			\$2,500.00
			Travel Cost:	\$4,000.00
		Total Other D	Direct Costs:	\$5,656.00
	rect Costs			
	Indirect Costs			Cost
1				
2				
3				
4		7 .441	diversit Constr	
		Total In DULE OF TASKS BY Q	direct Costs	

SECTION D – SCHEDULE OF TASKS BY QUARTERS
List the schedule of tasks by quarters, referring specifically to the objectives in Section B. Tasks should be a bulleted list of activities to be performed in each quarter.

Conditions for Enforcement Projects Only

By checking this box, the above agency agrees to the terms below as additional activities to be performed as part of this project.

- · A minimum of one (1) nighttime and one (1) daytime seat belt initiative per month;
- A minimum of one (1) impaired driving checkpoint per month;
- · A minimum of 50% of seat belt initiatives must be conducted at night between the hours of 7:00 p.m. and 7:00 a.m.;
- · Participation in all "Click It or Ticket" and "Booze It & Lose It" campaigns;
- Participation in any event or campaign as required by the GHSP;
- Attempt to utilize one of the Forensic Tests for Alcohol Branch's Mobile Breath Alcohol Testing (BATMobiles) units during at least one of the impaired driving checkpoints.

 \times

First Quarter (October, November, December)

- Conduct targeted enforcement in high crash locations twelve times a week
- Attend all GHSP sponsored events.
- Participate in all GHSP campaigns.
- Perform two day time checking stations a month.
- Perform one night time checking stations a month.
- Host or participate in one multi-jurisdiction checking station or saturation patrol per month.
- Perform two educational events per quarter (crash reduction).
- Purchase Grant Funded Equipment.
- Conduct/participate in three daytime seat belt enforcement activities per month.
- One CPS checking station per quarter.
- Meet with local and state DOT officials.
- Contact local media outlets once per quarter for young driver enforcement and education event.
- Conduct targeted speed enforcement six times a week.
- Host or participate in one impaired driving checkpoint per month

Second Quarter (January, February, March)

- Conduct targeted enforcement in high crash locations twelve times a week
- Attend all GHSP sponsored events.
- Participate in all GHSP campaigns.
- Perform two day time checking stations a month.
- Perform one night time checking stations a month.
- Host or participate in one multi-jurisdiction checking station or saturation patrol per month.
- Perform two educational events per quarter (crash reduction).
- Conduct/participate in three daytime seat belt enforcement activities per month.
- One CPS checking station per quarter.
- Meet with local and state DOT officials.
- Contact local media outlets once per quarter for young driver enforcement and education event.
- Conduct targeted speed enforcement six times a week.
- Host or participate in one impaired driving checkpoint per month

Third Quarter (April, May, June)

- Conduct targeted enforcement in high crash locations 4 times a week
- Attend all GHSP sponsored events.
- Participate in all GHSP campaigns.
- Perform two day time checking stations a month.
- Perform one night time checking stations a month.
- Host or participate in one multi-jurisdiction checking station or saturation patrol per month.
- Perform two educational events per quarter (crash reduction).
- Conduct/participate in four daytime seat belt enforcement activities per month.
- One CPS checking station per quarter.
- Meet with local and state DOT officials.
- Contact local media outlets once per quarter for young driver enforcement and education event.
- Conduct targeted speed enforcement six times a week.
- Host or participate in one impaired driving checkpoint per month
- Attend Lifesavers Conference

Fourth Quarter (July, August, September)

- Conduct targeted enforcement in high crash locations twelve times a week
- Attend all GHSP sponsored events.
- Participate in all GHSP campaigns.
- Perform two day time checking stations a month.
- Perform one night time checking stations a month.
- Host or participate in one multi-jurisdiction checking station or saturation patrol per month.
- Perform one educational events per quarter (crash reduction).
- Conduct/participate in four daytime seat belt enforcement activities per month.
- One CPS checking station per quarter.
- Meet with local and state DOT officials.
- Contact local media outlets once per quarter for young driver enforcement and education event.
- Conduct targeted speed enforcement six times a week.
- Host or participate in one impaired driving checkpoint per month.
- Attend Traffic Safety Conference

Note:1. Submitting grant application is not a guarantee of grant being approved.
2. Once form has been submitted, it cannot be changed unless it has a status of "Return".



SUBJECT:	CLOSURE OF UNOPEN PORTION OF E PARKER STREET
PREPARED BY:	NATHAN PAGE, PLANNING DIRECTOR

REQUESTED ACTION:

Approve Resolution Authorizing the process to begin closure of an unconstructed portion of E Parker Street.

BACKGROUND/SUMMARY:

The Isley Family is requesting the removal of a proposed roadway which bisects their land on E Elm Street. This portion of Right of Way (ROW) exists only on a Plat and has not been constructed, nor does it provide service to access land for anyone other than the Isleys. Additionally, there have been no utilities located in area by the City of Graham, nor anyone who came out as a result of an 811 call by the applicant to identify any infrastructure in the proposed ROW.

The proposed ROW was offered to the City of Graham on or before Plat Book 48, Page 145 at the Alamance County Register of Deeds.

This resolution will start the following actions:

- (1) A meeting will be held at 7:00 p.m. on the 4th day of September, 2018, in the Council Chambers of the Graham City Hall to consider the permanent closing of E Parker Street.
- (2) The City Clerk is hereby directed to publish this Resolution of Intent once a week for four successive weeks in The Alamance News, or other newspaper of general circulation in the area.
- (3) The City Clerk is hereby directed to transmit by registered or certified mail to each property abutting upon said street a copy of this Resolution of Intent.
- (4) The City Clerk is further directed to cause adequate notices of this Resolution of Intent and the scheduled public hearing to be posted as required by G.S. 160A-299.

FISCAL IMPACT:

This section of roadway is not currently counted for the purposes of the Powell Bill, and therefore the City receives no funds from the state for it.

STAFF RECOMMENDATION:

Approval.

SUGGESTED MOTION(S):

I move we approve the Resolution Authorizing a Funding Match for New Pedestrian Projects in Conjunction with NCDOT.

RESOLUTION DECLARING THE INTENTION OF THE CITY COUNCIL OF THE CITY OF GRAHAM TO CONSIDER THE PERMANENT CLOSING OF E PARKER STREET AND SETTING A PUBLIC HEARING

WHEREAS, the City of Graham has received a petition from adjoining property owners seeking the permanent closure of E. Parker Street, a public street extending approximately 0.16 miles that is east of E. Elm Street, and was never constructed nor used by the public, as proposed on Plat Book 48, Page 145 of the Alamance County Register of Deeds; and

WHEREAS, G.S. 160A-299 authorizes the City Council to close public streets and alleys; and

WHEREAS, the City Council considers it advisable to conduct a public hearing for the purpose of giving consideration to the closing of E. Parker Street.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Graham that:

- (1) A meeting will be held at 7:00 p.m. on the 4th day of September, 2018, in the Council Chambers of the Graham City Hall to consider the permanent closing of E Parker Street.
- (2) The City Clerk is hereby directed to publish this Resolution of Intent once a week for four successive weeks in The Alamance News, or other newspaper of general circulation in the area.
- (3) The City Clerk is hereby directed to transmit by registered or certified mail to each property abutting upon said street a copy of this Resolution of Intent.
- (4) The City Clerk is further directed to cause adequate notices of this Resolution of Intent and the scheduled public hearing to be posted as required by G.S. 160A-299.

This the 7th day of August 2018.

	Gerald R. Peterman, Mayor
ATTEST:	
Darcy L. Sperry, City Clerk	

From: Jay

To: Nathan Page

Subject: Isley Grahm property r/w abandonment

Date: Wednesday, August 01, 2018 4:57:22 PM

Nathan,

Mack and Harry Isley would like to have the "Proposed E. Parker Street Extension" right-of-way abandoned and returned to their ownership since they own the property on both sides of the "proposed R/W".

The email I sent earlier included the metes and bounds for the "proposed R/W".

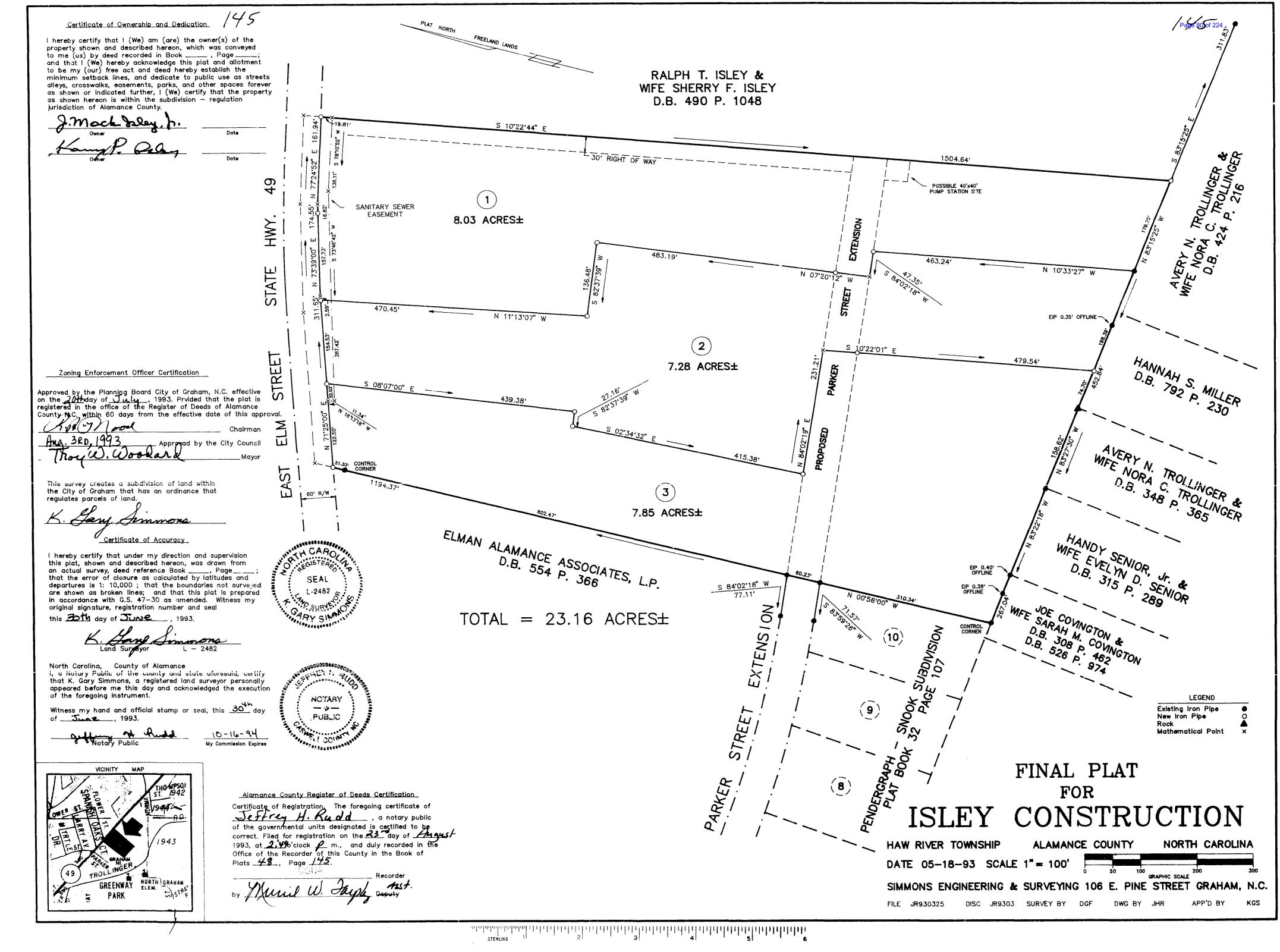
Let me know if you have any questions.

Thanks.

Jay Pope Summey Engineering Associates, PLLC P.O. Box 968 Asheboro, NC 27204 336.328.0902 office 336.328.0922 fax 336.465.6052 cell

SEA, PLLC COMPUTER FILE DISCLAIMER

Any computer files included with this transmittal are for informational purposes only. Their content can be considered accurate at the time of delivery, but is subject to change, in the future, without notice. These files are not to be interpreted as final engineering drawings and are not to be used for property acquisition or project construction. Due to constant updates and revisions to computers and software packages, SEA, PLLC does not guarantee that these files can be opened or read by the recipient. Furthermore, SEA, PLLC policy does not permit the internal conversion of files to alternate software packages or operating systems. These activities, if necessary, shall be the responsibility of the recipient. By opening this file, the recipient understands that SEA, PLLC does not authorize in any way that drawing is accurate for construction material quantity takeoffs or for survey staking.





SUBJECT:	ANNEXATION OF A LOT ON GOVERNOR SCOTT FARM ROAD
PREPARED BY:	NATHAN PAGE, PLANNING DIRECTOR

REQUESTED ACTION:

Approve the following (separately):

- Resolution Directing the Clerk to Investigate a Petition Received Under G.S. 160A-31 for a 69.781 acre lot on Governor Scott Farm Road.
- Resolution Fixing Date of Public Hearing on Question of Annexation Pursuant to G.S. 160A-31 for a 69.781 acre lot on Governor Scott Farm Road.

BACKGROUND/SUMMARY:

The attached petition seeks the Council's approval for an extension of the corporate limits to include the subject property. The area being considered for annexation is between Kimrey Road, Governor Scott Farm Road, and Senator Ralph Scott Parkway (Approx 70 acres). Water and Sewer are both available at this location.



The annexation process has multiple steps. The preliminary steps following receipt of a petition are to adopt two resolutions that are outlined in the "Requested Action" above. Approval of these resolutions does not finalize the annexation as Council is required to advertise and conduct a public hearing, followed by a vote on an annexation ordinance.

FISCAL IMPACT:

The fiscal impact of this annexation to the city is negligible. Water is available at the parcel, and the applicant intends to tie on to City water.

STAFF RECOMMENDATION:

Approval. The adoption of the requested resolutions simply moves forward the annexation process.

SUGGESTED MOTION(S):

- 1. I move we approve the Resolution Directing the Clerk to Investigate a Petition Received Under G.S. 160A-31 for a 69.781 acre parcel on Governor Scott Farm Road.
- 2. I move we approve the Resolution Fixing Date of Public Hearing on Question of Annexation Pursuant to G.S. 160A-31 for a 69.781 acre parcel on Governor Scott Farm Road.

RESOLUTION DIRECTING THE CLERK TO INVESTIGATE A PETITION RECEIVED UNDER G.S. 160A-31 FOR A 69.781 ACRE PARCEL ON GOVERNOR SCOTT FARM ROAD (AN1802)

WHEREAS, a petition requesting annexation of an area described in said petition was received on July 11, 2018, by the Graham City Council; and

WHEREAS, G.S. 160A-31 provides that the sufficiency of the petition shall be investigated by the City Clerk before further annexation proceedings may take place; and

WHEREAS, the City Council of the City of Graham deems it advisable to proceed in response to this request for annexation.

NOW, THEREFORE BE IT RESOLVED, by the City Council of the City of Graham:

That the City Clerk is hereby directed to investigate the sufficiency of the above described petition and to certify as soon as possible to the City Council the result of her investigation.

	Gerald R. Peterman, Mayor	
ATTEST:		
Darcy L. Sperry, City Clerk		

RESOLUTION FIXING DATE OF PUBLIC HEARING ON QUESTION OF ANNEXATION PURSUANT TO G.S. 160A-31 FOR A 69.781 ACRE PARCEL ON GOVERNOR SCOTT FARM ROAD (AN1802)

WHEREAS, a petition requesting annexation of the contiguous area described herein has been received; and

WHEREAS, the City Council has by resolution directed the City Clerk to investigate the sufficiency of the petition; and

WHEREAS, certification by the City Clerk as to the sufficiency of the petition has been made;

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Graham, North Carolina that:

- Section 1. A public hearing on the question of annexation of the area described herein will be held at the City Hall, 201 S. Main Street, Graham, NC at 7:00 pm on September 4, 2018.
- Section 2. The area proposed for annexation is described as follows:

ALL of that certain piece, parcel or tract of land lying and being in the City of Graham, Graham Township, Alamance County, North Carolina, and being more particularly described as follows:

BEING A 69.781 TRACT OF LAND SITUATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KIMREY ROAD (S.R. 2125) AND GOVERNOR SCOTT FARM ROAD (S.R. 2124), A PORTION OF LOT 2 AS DESCRIBED IN MAP BOOK 77, PAGE 155, ALAMANCE COUNTY REGISTRY (HENCE ACR), AND BEING A PORTION OF TAX ID: 172761 SITUATED IN THE UNINCORPORATED AREA OF ALAMANCE COUNTY, NORTH CAROLINA, MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING AT NCGS STATION "GUVNOR" HAVING NC GRID COORDINATES IN U.S. SURVEY FEET OF NORTH 839,741.12 AND EAST 1,897,712.00;

THENCE, S 72°50'06" E, A HORIZONTAL GRID DISTANCE OF 2,798.27 FEET TO A FOUND CONCRETE MONUMENT, HAVING NC GRID COORDINATES IN U.S. SURVEY FEET OF NORTH 838,915.28 AND EAST 1,900,385.63, ON THE SOUTHERLY RIGHT OF WAY LINE OF SENATOR RALPH SCOTT PARKWAY, A 60' RIGHT OF WAY PER MAP BOOK 77, PAGE 248, AND BEING THE NORTHWESTERN MOST CORNER OF THAT LIDL US OPERATIONS, LLC TRACT AS DESCRIBED IN DEED BOOK 3489, PAGE 373 AND BEING FURTHER KNOWN AS LOT 1A PER MAP BOOK 77, PAGE 155, **THE POINT OF BEGINNING**;

THENCE, IN A CLOCKWISE DIRECTION, DEPARTING SAID RIGHT OF WAY OF SENATOR RALPH SCOTT PARKWAY AND RUNNING WITH THE WESTERLY LINE OF SAID LIDL US OPERATIONS, LLC TRACT, S 40°23'47" E, 2,423.69 FEET TO A FOUND CONCRETE MONUMENT ON THE NORTHERYLY RIGHT OF WAY LINE OF KIMREY ROAD (60' PUBLIC RIGHT OF WAY), MAP BOOK 65, PAGE 177, ACR;

THENCE, WITH SAID NORTHERLY RIGHT OF WAY OF KIMREY ROAD THE FOLLOWING SEVEN (7) COURSES

- 1. S 70°07'55" W, 168.33 FEET TO A FOUND CONCRETE MONUMENT:
- S 70°26'57" W. 235.26 FEET TO A CALCULATED POINT:
- 3. S 70°41'04" W, 300.01 FEET TO A CALCULATED POINT;
- 4. S 70°24'37" W, 300.07 FEET TO A CALCULATED POINT;
- S 70°24'57" W, 300.00 FEET TO A CALCULATED POINT;
- 6. S 70°25'39" W, 200.75 FEET TO A CALCULATED POINT;
- 7. S 67°28'19" W, 66.64 FEET TO A CALCULATED POINT AT THE INTERSECTION OF SAID NORTHERLY RIGHT OF WAY OF KIMREY ROAD AND THE EASTERLY RIGHT OF WAY LINE

GOVERNOR SCOTT FARM ROAD, A 60' PUBLIC RIGHT OF WAY PER MAP BOOK 65, PAGE 177, ACR;

THENCE, WITH SAID EASTERLY RIGHT OF WAY OF GOVERNOR SCOTT FARM ROAD THE FOLLOWING EIGHT (8) COURSES:

- 1. N 25°47'47" W, 96.21 FEET TO A CALCULATED POINT;
- N 27°35'12" W, 200.51 FEET TO A CALCULATED POINT;
- 3. N 27°55'40" W, 90.98 FEET TO A CALCULATED POINT;
- 4. N 36°32'38" W, 202.74 FEET TO A CALCULATED POINT;
- 5. N 41°32'38" W, 399.76 FEET TO A CALCULATED POINT;
- 6. N 41°57'38" W, 696.23 FEET TO A CALCULATED POINT;
- 7. N 39°07'12" W, 149.63 FEET TO A CALCULATED POINT;
- 8. N 16°38'59" W, 92.10 FEET TO A CALCULATED POINT AT THE INTERSECTION OF SAID EASTERLY RIGHT OF WAY OF GOVERNOR SCOTT FARM ROAD AND SAID SOUTHERLY RIGHT OF WAY LINE OF SENATOR RALPH SCOTT PARKWAY;

THENCE, DEPARTING SAID EASTERLY RIGHT OF WAY OF GOVERNOR SCOTT FARM ROAD AND RUNNING WITH SAID SOUTHERLY RIGHT OF WAY LINE OF SENATOR RALPH SCOTT PARKWAY THE FOLLOWING SIX (6) COURSES:

- 1. N 42°53'55" E, 39.07 FEET TO A CALCULATED POINT;
- 2. N 51°58'56" E, 195.14 FEET TO A CALCULATED POINT;
- 3. WITH THE ARC OF A CIRCULAR CURVE TO THE LEFT HAVING A RADIUS OF 3030.00 FEET, AN ARC LENGTH OF 73.98 FEET, A CHORD OF 73.98 FEET BEARING N 51°16'58" E TO A CALCULATED POINT:
- 4. N 50°34'59" E, 713.53 FEET TO A CALCULATED POINT;

Darcy L. Sperry, City Clerk

- 5. WITH THE ARC OF A CIRCULAR CURVE TO THE RIGHT HAVING A RADIUS OF 2370.00 FEET, AN ARC LENGTH OF 167.32 FEET, A CHORD OF 167.29 FEET BEARING N 52°36'21" E TO A CALCULATED POINT:
- 6. N 54°37'42" E, 166.48 FEET TO THE POINT OF BEGINNING, AND CONTAINING 69.781 ACRES OR 3,039,647 SQUARE FEET OF LAND, AS SHOWN ON THAT "FINAL PLAT SHOWING: CORPORATE LIMITS EXTENSION" PREPARED BY THE SURVEY COMPANY INC., DATED JUNE 28, 2018. SIGNED BY CHARLES S. LOGUE, NC PLS #L-4212.

Notice of the public hearing shall be published once in The Alamance News, a newspaper having general circulation in the City of Graham, at least ten (10) days prior to the date of the public hearing.
Gerald R. Peterman, Mayor
ATTEST:



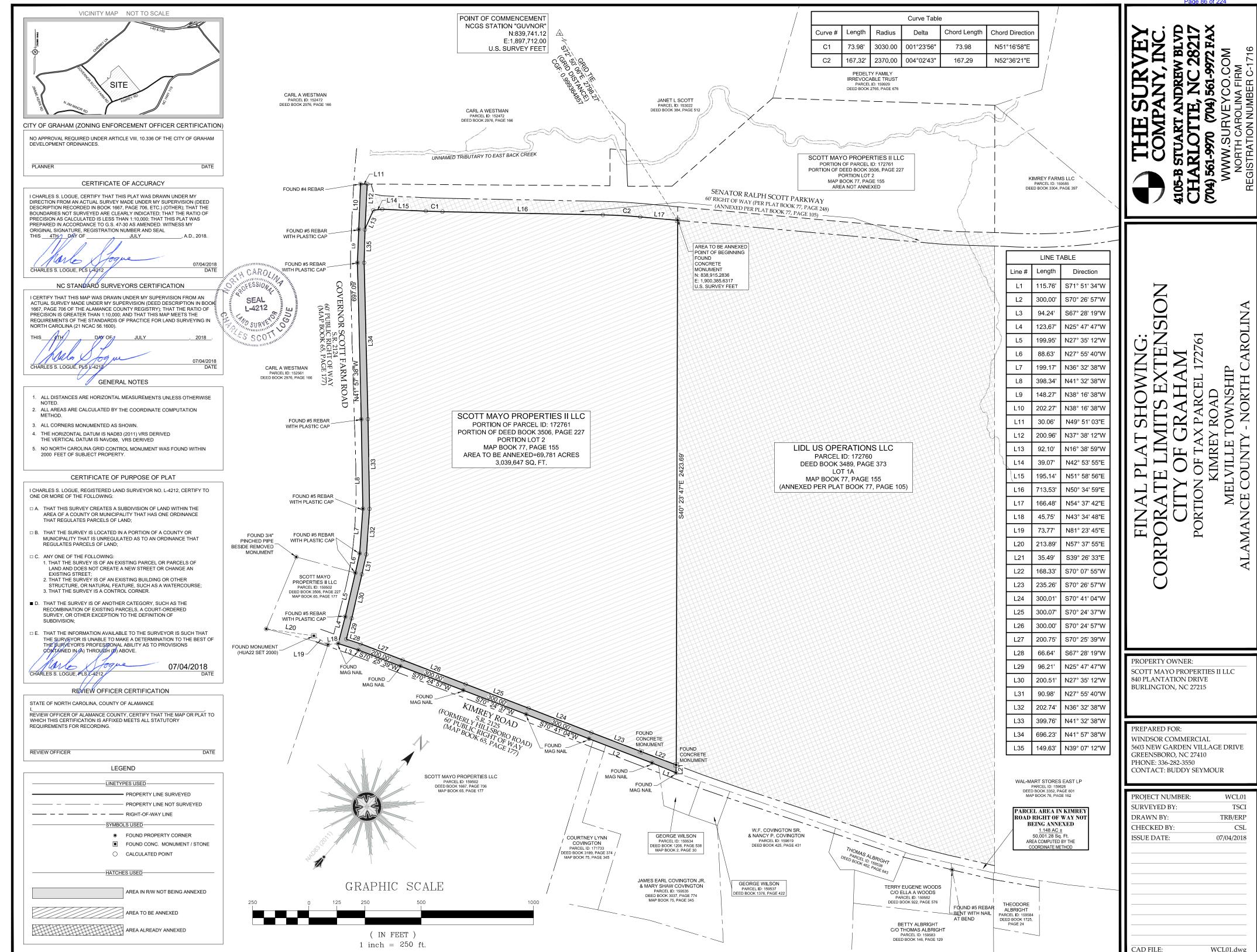
Petition for ANNEXATION

P.O. Drawer 357 201 South Main Street Graham, NC 27253 (336) 570-6705 Fax (336) 570-6703 www.cityofgraham.com

To the City Council of the City of Graham, NC:

attach additional sheets if necessary...

the City of Graham.	eal property, respectfully request th	hat the area descri	bed in pa	ragraph 2 b	elow be annexed into	
If applicable as "income-based	d": We believe that this petition me We believe that this petition meets				1).	
2. The area to be annexed is as follows:	ontiguous 🔀 non-contiguous t	to the City of Grah	am and t	he boundari	es of such territory are	е
General description of area to be	annexed					
Approximately 70 a	cnes bounded by Sera	ter Ralph Sc	of F	Parkwas,	Governo/ Scott	_
Form Road and Kin	cres bounded by Serativey Road per the c	attached e	xhib.	.¥.		
all parcels and total square m Metes and Bounds Description 3. We acknowledge that any zoning identified on this petition. We fur	py, 2 mylars and 1 pdf. In addition to a number of a number and acreage of area to be annoted in — 1 paper and 1 digital copy wested rights acquired pursuant to ther acknowledge that failure to detect for the property. (If zoning vestes	exed. G.S. 160A-385.1 o eclare such rights o	r G.S. 153 n this pe	3A-344.1 mu tition shall re	st be declared and esult in a termination	
Name	Address		Vested rights?	Signature	11	
Name Scott Mayo Properties LLC	Address 840 Plantation Drive		- 1	Signature	HA-	
	,		- 1	Signature	HA-	
	,		- 1	Signature	HA-	
	,		- 1	Signature	HA-	
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	,		- 1	Signature		
	,		- 1	Signature		



PROJECT NUMBER:	WCL01
SURVEYED BY:	TSCI
DRAWN BY:	TRB/ERP
CHECKED BY:	CSL
ISSUE DATE:	07/04/2018
CAD FILE:	WCL01.dwg

CERTIFICATE OF SUFFICIENCY FOR A PORTION (69.781 ACRES) OF PARCEL ON GOVERNOR SCOTT FARM ROAD GPIN#9803085096 (AN1802)

To the City Council of the City of Graham, North Carolina:

I, Darcy L. Sperry, City Clerk, do hereby certify that I have investigated the petition attached hereto and have found as a fact that said petition is signed by an appointed representative of real property lying in the area described therein, in accordance with G.S. 160A-31.

In witness whereof, I have hereunto set my hand and affixed the seal of the City of Graham, this the 7th day of August, 2018.

Darcy L. Sperry, City Clerk



STAFF REPORT

SUBJECT:	TEMPORARY OUTDOOR SALES ORDINANCE
PREPARED BY:	AARON HOLLAND, ASSISTANT CITY MANAGER, NATHAN PAGE,
	PLANNING DIRECTOR

REQUESTED ACTION:

Amend Code of Ordinances and fee schedule to allow for Temporary Outdoor Sales.

BACKGROUND/SUMMARY:

City Council approved a text amendment at their June 6, 2017 meeting that allowed for Temporary Outdoor Sales as use-by-right in the B-1 (Central Business) District at City approved and permitted events. Due to conflicting ordinances, Council directed staff to research and develop language at the January 2, 2018 meeting.

After several months of discussion between Council, staff, and concerned parties, Council voted 3-2 during the first reading on June 5th to allow for Temporary Outdoor Sales with a 25 ft. distance requirement from restaurants and a \$25 permit fee. Because the vote was insufficient to pass on the first reading, a second reading was scheduled for July 3rd. An amendment to the text was proposed at the July 3rd meeting from Council to increase the distance requirement from 25ft. to 50ft from a structure of a similar establishment. Council voted 3-2 in favor of this proposed ordinance, a second reading was scheduled for August 7th.

FISCAL IMPACT:

N/A

STAFF RECOMMENDATION:

Approval. Staff recommends amended language to clarify the distance requirement for vendors.

SUGGESTED MOTION(S):

I move to approve the Ordinance amendment to Chapter 8 (Businesses), Article VIII of the Code of Ordinances to allow for Temporary Outdoor Sales as attached.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF GRAHAM, ADDING CHAPTER 8, ARTICLE VIII, SEC. 8-345 TO 8-346 TO THE CODE OF ORDINANCES OF THE CITY OF GRAHAM, NORTH CAROLINA

The City Council of the City of Graham, North Carolina, does ORDAIN:

Sec. 1. That the Code of Ordinances, City of Graham, North Carolina, is hereby amended by adding a section, to be numbered 8-345 to 8-346, which said section shall read as follows:

Chapter 8 - BUSINESSES

ARTICLE VIII. - TEMPORARY OUTDOOR SALES

ADD: SEC. 8-345. - Temporary Outdoor Sales:

The following restrictions apply to all Temporary Outdoor Sales on private property. These restrictions shall not apply to Garage Sales, as that term is used and defined in Article 8-306 et seq., Code of Ordinances, City of Graham, which shall hereafter continue to regulate such sales and conduct.

The following restrictions shall not apply to farmers selling goods grown on their own property, nor to approved vendors in association with City approved and permitted events. All other organizations shall limit their outdoor sales as follows:

- 1. **Permit Required**: Any vendor seeking to make use of this ordinance must apply to the City's Planning Department for a permit and pay the fee for the permit. The issuance of the permit is contingent upon the continuous operation of the liability insurance and any other regulatory requirement, such as health department food service permit for mobile food service.
- 2. **Cleanliness and Sanitation**: Vendors must post in a conspicuous place, visible to the public from the service window, all licenses and permits required by any regulator, including but not limited to the Health Department and Department of Insurance. Vendors are required to keep a 15 foot buffer free of trash. Vendors may not increase the burden on City Sanitation by using the City trash receptacles. Vendors must provide a private means for trash disposal.
- 3. **Hours of Operation**: Vendors may not begin their operations before 7AM. Vendors must complete all operations before 11PM.
- 4. **Duration**: The property owner shall only allow the use of their property for not more than three (3) days within a seven (7) day period. A vendor shall be limited to no more than one (1) day within that seven (7) day period.
- 5. **Permitted zones**: The zoning of the property must allow for the intended use of the vendor in accordance with the City of Graham Development Ordinances. Vendors may conduct sales within the public right-of-way in locations directed by City Staff only when the City Council has approved a temporary street closing for -City- approved and permitted events such as a street festival/fair.
- 6. **Location**: Vendors shall not be located within 50 feet from structure of a similar establishment. This restriction shall not apply to the property owner.
- 7. **Sound:** Generator(s) must not run within 200' of a dwelling unit after 9 PM, nor before 8AM, except as part of a City sanctioned event. No vendor supplied music or amplified advertising shall be permitted at any time.

- 8. **Unattended sales**: All vendors must have personnel at the site of temporary sale at all times. The vendor site shall not be left unattended for more than ten minutes.
- 9. **Signage**: Other than any signs painted on the mobile unit (for example on the side of a food truck), only one A-frame sign, not to exceed 3 square feet per side is permitted.

SEC. 8-346 - Violation.

A violation of this ordinance shall be punishable as a Class 3 misdemeanor, subject to a fine not to exceed \$500.00 as provided in section 14-4 of the General Statutes of North Carolina (G.S. 14-4). Each day any violation of this Code or other ordinance shall continue shall constitute a separate offense. The imposition of a penalty under the provisions of this ordinance shall not prevent the revocation or suspension of any license, franchise or permit issued or granted hereunder. A violation of this ordinance is declared a nuisance to the public and may be summarily abated by the Chief of Police in addition to the imposition of a fine or imprisonment. Any violation of this Code by any officer, agent or other person acting for or employed by any corporation or unincorporated association or organization, while acting within the scope of his office or employment, shall in every case also be deemed to be a violation by such corporation, association or organization. Any officer, agent or other person acting for or employed by any corporation or unincorporated association or organization shall be subject and liable to punishment as well as such corporation or unincorporated association or organization for the violation by it of any provisions of this Code, where such violation was the act or omission, or the result of the act, omission or order, of any such person.

(Section added xx/xx/xx).

Sec. 2. That this Ordinance shall be in approval and publication, as provided the state of the	full force and effect from and after its passage, by law
This the, day of, 20	18.
	Mayor
ATTEST:	
City Clerk	



Text Amendment for: Temporary Outdoor

Sales

Type of Request: Text Amendment

Meeting Dates

Planning Board on May 15, 2018 City Council on June 5, 2018, July 3, 2018 August 7, 2018

Contact Information

Chelsea Dickey 200 N Main Street, Graham NC 27253 chelsea@thecooperative.co

Summary

Chelsea Dickey has requested the City reexamine our existing

Temporary Outdoor Sales. This amendment is to remove the restriction from the Development Ordinance, such that the Code of Ordinances would regulate the use. The Temporary Outdoor Sales would still need to abide by the closest zoning use. I.e. a commercial vendor would be permitted on B-2 lot, but not on a R-7 lot.

The following amendments to the Development Ordinance are proposed: Existing Language:

Section 10.135 Table of Permitted Uses

Use Type	R-18	R-15	R-12	R-9	R-7	C-R	R-MF	R-G	I-O	C-0-I	B-3	B-2	B-1	C-B	I-1 (Note 19)	I-2 (Note 19)	C-I	C-MXR	C-MXC	LUC
Roadside																				
Stands &																				
Outdoor																				
Sales,																				
Temporary,																				
at a City																				
approved																				
and																				
permitted																				
event													Χ							

Proposed Language, removing the restriction from the Development Ordinance:

Section 10.135 Table of Permitted Uses

Project Name

Temporary Outdoor Sales (AM1801)

<u>Location</u>
city-wide

Current Zoning not applicable

Proposed Zoning not applicable

Overlay District not applicable

Staff Recommendation

Approval

Use Type	R-18	R-15	R-12	R-9	R-7	C-R	R-MF	R-G	I-O	C-0-I	B-3	B-2	B-1	C-B	1 (Note 19)	2 (Note 19)	C-I	C-MXR	C-MXC	LUC
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event	-	-	-	-	•	-	-	-	-	-	-	-	X	-	-	-	-	1	-	-

Regulations regarding the impacts of Temporary Outdoor Sales would be added to the Code of Ordinances by the City Council.

Conformity to The Graham 2035 Comprehensive Plan and Other Adopted Plans

Strategy 2.1.5 Reduce Barriers Work with local businesses and economic development partners to identify and address unnecessary barriers to local business development. Mobile sales have been a less expensive way to enter into a market, and have successfully expanded into brick and mortar businesses in many municipalities. Additionally, this would make Girl Scout cookie or other similar sales permissible without requiring City Council approval.

Planning District
All

Development Type
All

Strategy 2.1.1 Business Incubation Develop a business incubation program to encourage development of new business ventures. As the cost to start a food truck can be around \$10,000 while a new restaurant is in excess of \$100,000, the ability for an entrepreneur to test a market theory is much more forgiving for food trucks.

Policy 2.3.1 Downtown A vibrant downtown is critical for Graham's economic success. Graham's downtown is a priority when considering incentives, investments, regulations, and marketing. Encourage entertainment options to locate within Graham's Downtown. With the current popularity of downtown events, the desire for additional dining venues has been growing. Food Truck Rodeos continue to be successful events in surrounding municipalities and draw crowds who typically do not frequent the downtown area.

Applicable Planning District Policies and Recommendations

• Not applicable; city-wide.

Staff Recommendation

Based on *The Graham 2035 Comprehensive Plan*, other jurisdictions and best practices, **staff recommends approval of the text amendment.** The following supports this recommendation:

•	The regulation of temporary outdoor sales is better located within the Code of Ordinances, as the
	Development Ordinances are intended to regulate land use.

of Ordinares



PLANNING BOARD

Recommendation & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. The Planning Board shall advise and comment on whether the proposed amendment is consistent with "The Graham 2035 Comprehensive Plan" and any other officially adopted plan that is applicable. The Planning Board shall provide a written recommendation to the City Council that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

Temporary Outdoor Sales (AM1801)

Type of Request

Text Amendment

Meeting Dates

Planning Board on May 15, 2018 City Council on June 8, 2018

I move to recommend APPROVAL of the application as presented.
I move to recommend APPROVAL of the alternative language, as proposed by the Planning Board.
I move to recommend DENIAL. Leave the language in the Development Ordinarie, and Clarife the requirements for Temporary Vehicular Outdoor Food Sales in the Code The application is consistent with The Graham 2035 Comprehensive Plan. The application is not fully consistent with The Graham 2035 Comprehensive Plan.
The action is reasonable and in the public interest for the following reasons:
This report reflects the recommendation of the Planning Board, this the 15 th day of May, 2018.
Attest:
Ricky Hall, Planning Board Chair
Debbis Golf
Debbie Jolly, Secretary



City Council Decision & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. When adopting or rejecting any zoning amendment, the City Council shall also approve a statement describing whether its action is consistent with the "The Graham 2035 Comprehensive Plan" and briefly explaining why the City Council considers the action taken to be reasonable and in the public interest. The Planning Board shall provide a written recommendation to the City Council, but a comment by the Planning Board that a proposed amendment is inconsistent with the "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

Temporary Outdoor Sales (AM1801)

Type of Request Text Amendment

Meeting Dates

Planning Board on May 15, 2018 City Council on June 5, 2018 July 3, 2018 and August 7, 2018

Choose one
I move that the text amendment be APPROVED .
I move that the text amendment be DENIED .
Choose one
The text amendment is consistent with <i>The Graham 2035 Comprehensive Plan</i> .
The text amendment is not fully consistent with <i>The Graham 2035 Comprehensive Plan</i> .
State reasons
This action is reasonable and in the public interest for the following reasons:
This report reflects the decision of the City Council, this the 7 th day of August, 2018.
Attest:
Gerald R. Peterman, Mayor
Darcy L. Sperry, City Clerk



Text Amendment for: Section 10.135 Table of

Permitted Uses

Type of Request: Text Amendment

Meeting Dates

Planning Board on June 19, 2018 City Council on July 3, 2018, August 7, 2018

Contact Information

Kristin Foust, McPherson Grading Co. 2461 Russell McPherson Rd., Burlington NC 27215. kfoust@mcphersongrading.com

Summary

Kristen Foust has requested an amendment to permit duplex dwellings as use by right in our high density residential zones.

The following amendments to the Development Ordinance are proposed:

Existing Language:

Section 10.15 Definitions

<u>Dwelling, two-family</u> - A detached building designed for occupancy exclusively by two (2) families living independently of each other.

Project Name

Duplex in High Density (AM1804)

Location

city-wide

Current Zoning

not applicable

Proposed Zoning

not applicable

Overlay District

not applicable

Staff Recommendation

Approval

Section 10.135 Table of Permitted Uses

Use Type	R-18	R-15	R-12	R-9	R-7	C-R	R-MF	R-G	I-O	I-0-1	B-3	B-2	B-1	C-B	I-1 (Note 19)	I-2 (Note 19)	C-I	C-MXR	C-MXC	LUC
Dwelling, Duplex					S		Х	Х												1

Section 10.149 Special Uses Listed

Use: Duplex Dwelling Unit

Special Use District: R-7

Minimum of 11,000 square feet for each two dwelling units required.

Minimum of 80 feet road frontage required. On corner lots this frontage shall be measured on the side with the shortest width.

Proposed Language:

Section 10.15 Definitions

<u>Dwelling, two-family-duplex</u> - A detached building designed for occupancy exclusively by two (2) families living independently of each other. <u>All duplexes shall maintain sufficient parking for residents on a concrete, asphalt or permeable substitute surface, not to include gravel.</u>

Section 10.135 Table of Permitted Uses

Use Type	R-18	R-15	R-12	R-9	R-7	C-R	R-MF	R-G	I-O	I-0-1	B-3	B-2	B-1	C-B	I-1 (Note 19)	I-2 (Note 19)	C-I	C-MXR	C-MXC	TOC
Dwelling, Duplex					<u>x</u> s		X	Х												1

Section 10.149 Special Uses Listed

Use: Duplex Dwelling Unit

Special Use District: R-7

Minimum of 11,000 square feet for each two dwelling units required.

Minimum of 80 feet road frontage required. On corner lots this frontage shall be measured on the side with the shortest width.

Conformity to The Graham 2035 Comprehensive Plan and Other Adopted Plans

Vision: Diverse Housing, Complete Neighborhoods

Graham will be a desirable place to live because of its variety of high quality housing options, providing affordable choices to people of all backgrounds. Neighborhoods will be walkable, safe, and vibrant and will promote private investment and enhancement of existing and future properties.

Issue 2: Maximize Land Use Efficiency

Communities are often tempted to support inefficient development in the name of economic growth. This can end up leading to higher costs to the public in the long term. Graham should plan for the efficient allocation and use of infrastructure over time, especially within employment and industrial areas.

• 2.2.1: Focused Development In order to maintain Graham's affordability and promote infill development and focused, walkable, and mixed use built environments. *Permitting duplex structures in Graham will incentivize infill development and allow for greater density without lengthening municipal infrastructure.*

- 2.3.1: Facilitate focused development Incentivize pedestrian-oriented nodal development consistent with this plan by incentivizing smart growth development. The City could choose to utilize some of the following methods: Expedited permit review... flexible and innovate regulations... The switch from requiring a special use permit to use by right would require only the building inspector review plans for duplexes, reducing the three month lead time, public hearings and City Council approval currently required.
- **5.1.1 Housing variety** Encourage a mix of housing types within Graham to increase choice. These can include single family dwelling units, multifamily dwelling units, small units, pre-fabricated homes, co-housing, and clustered housing. *This amendment facilitates a diversity of housing options.*
- **5.2.1 Diverse Neighborhoods** Encourage a mix of housing types within Graham, including detached, duplex, multifamily, townhomes, and live-work units. *This amendment allows additional neighborhood choices*.
- **5.2.2 Multigenerational Housing** Promote buildings and neighborhood designs that serve multiple age groups simultaneously and meet the needs of young people, families, older adults, and people with disabilities, especially in focus areas and in close proximity to services. *Permitting the construction of additional duplex would allow for multi-generational housing, as well as smaller units for families without children living at home.*

Applicable Planning District Policies and Recommendations

• Not applicable; city-wide.

Staff Recommendation

Based on the comprehensive plan, staff **recommends approval** of the text amendment. The following supports this recommendation:

Planning District

Development Type All

• Permitting duplex dwellings in high density areas will allow for a more efficient utilization of City infrastructure and services.

Nathan Page

From: Kristin Foust <kfoust@mcphersongrading.com>

Sent: Wednesday, May 30, 2018 11:36 AM

To: Nathan Page **Subject:** Washington Street

Attachments: 2018-40-Foust Sketch-20180522.pdf; 12-006 Duplex-Elevations.pdf

Nathan,

Please see attached sketch for our proposal to parcels 135148 and 135149. We propose to divide these 2 parcels into 4 to allow for 4 duplex units to be constructed. We would like to be added to the agenda on the next Planning Board meeting to ask the City to amend the development ordinance to require less standards for duplexes or remove the frontage and square footage requirements or to make the duplexes use by right in the R7 zone, as the property is currently zoned.

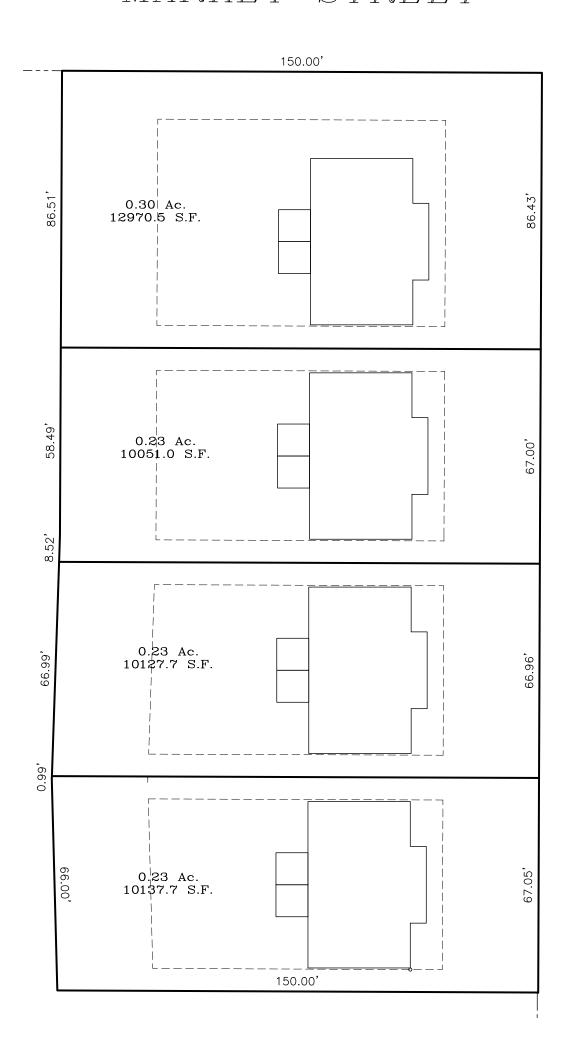
We currently own the duplex located at 307/309 Washington Street that is the same plan we propose to construct at this site.

Thank you

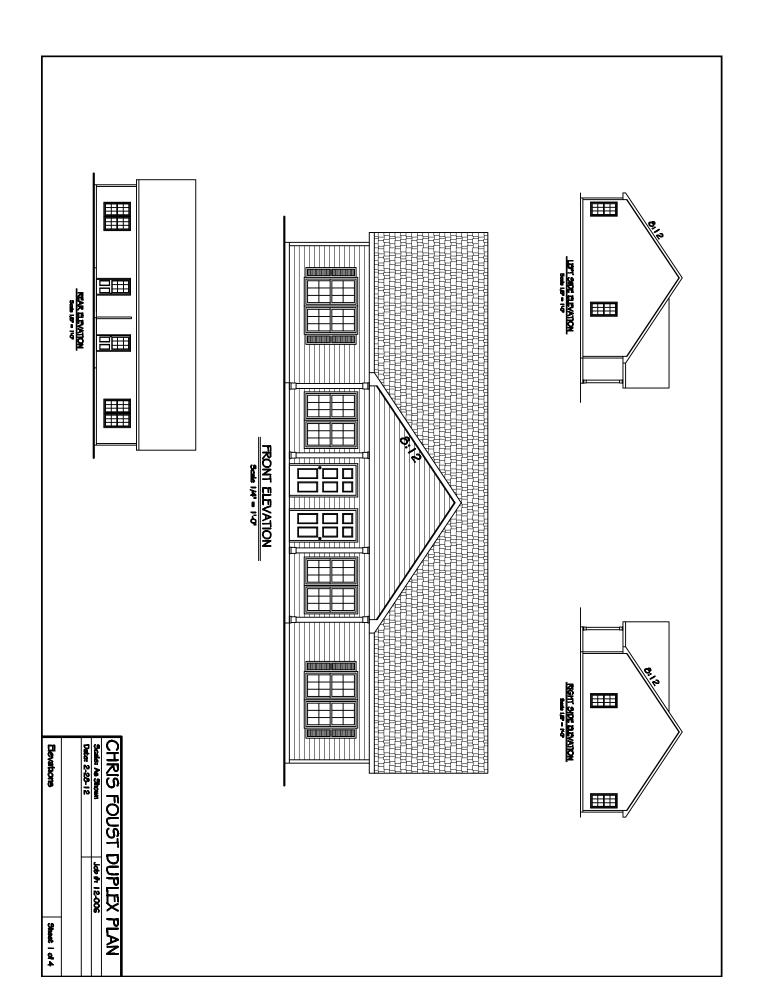
Kristin M. Foust

McPherson Grading Co. 2641 Russell McPherson Road Burlington, NC 27215 Office 336-227-9231 Fax 336-221-1647 Mobile 336-516-5013

MARKET STREET



WASHINGTON STREET





PLANNING BOARD Recommendation & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. The Planning Board shall advise and comment on whether the proposed amendment is consistent with "The Graham 2035 Comprehensive Plan" and any other officially adopted plan that is applicable. The Planning Board shall provide a written recommendation to the City Council that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

Duplex in High Density (AM1804)

Type of Request

Text Amendment

Meeting Dates

Planning Board on June 19, 2018 City Council on July 3, 2018

I move to recommend APPROVAL of the application as presented.
I move to recommend APPROVAL of the alternative language, as proposed by the Planning Board.
I move to recommend DENIAL.
The application is consistent with The Graham 2035 Comprehensive Plan.
The application is not fully consistent with The Graham 2035 Comprehensive Plan.
The action is reasonable and in the public interest for the following reasons:
This report reflects the recommendation of the Planning Board, this the 19 th day of June, 2018.
Attest:
Ricky Hall, Planning Board Chair
Debbie Jolly, Secretary



City Council Decision & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. When adopting or rejecting any zoning amendment, the City Council shall also approve a statement describing whether its action is consistent with the "The Graham 2035 Comprehensive Plan" and briefly explaining why the City Council considers the action taken to be reasonable and in the public interest. The Planning Board shall provide a written recommendation to the City Council, but a comment by the Planning Board that a proposed amendment is inconsistent with the "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

Duplex in High Density (AM1804)

Type of Request
Text Amendment

Meeting Dates

Planning Board on June 19, 2018 City Council on July 3, 2018, August 7, 2018

Choose one
☐ I move that the text amendment be APPROVED .
☐ I move that the text amendment be DENIED .
Choose one
The text amendment is consistent with <i>The Graham 2035 Comprehensive Plan</i> .
The text amendment is not fully consistent with <i>The Graham 2035 Comprehensive Plan</i> .
State reasons
This action is reasonable and in the public interest for the following reasons:
This report reflects the decision of the City Council, this the 7 th day of August, 2018.
Attest:
Could B. Botomara Maria
Gerald R. Peterman, Mayor
Darcy L. Sperry, City Clerk

RESOLUTION TO OPPOSE THE PROPOSED MOUNTAIN VALLEY PIPELINE SOUTHGATE EXTENSION IN ALAMANCE COUNTY BY THE GRAHAM CITY COUNCIL

Whereas, the Mountain Valley Pipeline (MVP) LLC announced plans in April 2018 to extend the 303-mile proposed Mountain Valley Pipeline from its currently planned end point in Pittsylvania County, Virginia, 72 miles through Rockingham and into Alamance Counties of North Carolina, creating "MVP Southgate"; and

Whereas, the proposed 24-inch MVP Southgate Extension pipeline in North Carolina would transport highly pressurized "fracked" gas from the Marcellus Shale Region; and

Whereas, according to recent earnings calls, MVP LLC estimates the proposed extension cost at between \$350 and \$500 million which could ultimately be paid for by captive ratepayers; and

Whereas, the proposed MVP Southgate is likely to create few, if any, permanent new jobs or opportunities and likely no or few temporary jobs or opportunities for the citizens of Alamance County; and

Whereas, according to a recent study by Synapse Energy Economic, Inc, "the anticipated gas supply capacity on existing and upgraded infrastructure [in Virginia and North Carolina] is sufficient to meet maximum gas demand from 2017 through 2030"; and

Whereas, the proposed MVP Southgate would require up to 125-foot-wide temporary easement during its construction phase and a 50-foot permanent easement with very limited practical use for the landowners; and

Whereas, the proposed MVP Southgate would clear away hundreds of acres of natural habitat, mature trees; and

Whereas, health and safety hazards include pipeline leaks, potentially catastrophic explosions, and public health hazards due to toxic compressor station emissions and water contamination; and

Whereas, people living near compressor stations experience respiratory impacts, sinus problems, throat irritation, eye irritation, nasal irritation, vision impairment, sleep disturbances, severe headaches and complain of the constant high noise levels; and

Whereas, local emergency first responders may not possess the assets, resources, training, nor personnel to properly respond to a catastrophic explosion or leak of a pipeline of this magnitude; and

Whereas, highly pressurized fracked gas pipelines are known to leak methane gas, which contaminates the soil and air and has been known to cause sudden explosions; and

Whereas, surface and subsurface disturbances, alternation of watercourses, impacts on groundwater, fragmentation of habitats, visual blight, creation of travel corridors for invasive species, lost timber production, and other changes are all likely; and

Whereas, environmental risks include damage to streams and wetlands where the pipeline crosses and from heavy machinery and construction sediment; and

Therefore, let it be Resolved that the **Graham City Council** officially opposes the proposed Mountain Valley Pipeline Southgate extension from gaining permits, using eminent domain to take land, and constructing its pipeline through Alamance County, North Carolina.

Economic Costs of the Mountain Valley Pipeline:

Effects on Property Value, Ecosystem Services, and Economic Development in Virginia and West Virginia

MAY 2016

Report to:
Protect Our Water, Heritage, Rights (The POWHR Coalition)

powhr.org

Spencer Phillips, PhD Sonia Wang Cara Bottorff



Research and strategy for the land community.

keylogeconomics.com

EXECUTIVE SUMMARY

The Mountain Valley Pipeline (MVP) is proposed to carry natural gas from the Marcellus and Utica Shale approximately 300 miles through 11 West Virginia and 6 Virginia counties before terminating at the existing Transcontinental pipeline compressor station in Pittsylvania County, Virginia. Mountain Valley Pipeline, LLC, which would construct and operate the pipeline as a joint venture of EQT Corporation and NextEra Energy, Inc., and some public officials have promoted the MVP as both environmentally safe and economically beneficial, providing economic opportunity for local communities along the proposed route.

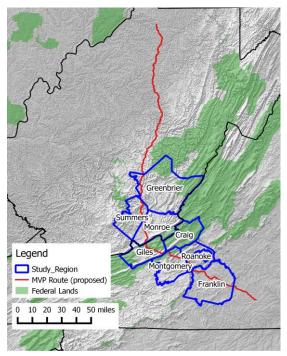


FIGURE 1: Eight-County Study Region

Note: Roanoke County includes the independent cities of Salem and Roanoke

Sources: MVP route digitized from online maps and MVP LLC filings (http://mountainvalleypipeline.info/maps/); Study Region (counties), federal lands, and hill shade from USGS and http://nationalmap.gov/small_scale/

Promised economic benefits, however, are only part of the impact the Federal Energy Regulatory Commission (FERC) must review before deciding whether to approve the construction and operation of the pipeline. Under its own policy and the more comprehensive requirements of the National Environmental Policy Act, FERC's review must consider the full range of environmental effects of the proposed pipeline. These include the various ways in which environmental effects would result in changes in human well-being—including economic benefits and costs. While estimates of the positive economic effects, including construction jobs and local tax payments, have been developed and promoted as reasons to move forward with the pipeline, no systematic consideration of the potential negative economic effects—economic costs—of the MVP has been completed.

To help fill the gap in current information, the POWHR (Protect Our Water, Heritage, Rights) coalition of community groups from an eight-county region in West Virginia and Virginia commissioned this independent research into key economic costs of the MVP. This region comprises Greenbrier, Monroe, and Summers Counties in West Virginia and Craig, Franklin, Giles, Montgomery, and Roanoke Counties in Virginia (Figure 1). The MVP's construction, operation, and presence would impose three types of costs on this region. First, the pipeline would impact property values along the approximately 143 miles

of pipeline proposed for the study region. Affected properties are those touched by the 50-foot-wide right-of-way, within the 1.4-mile-wide evacuation zone, and throughout the viewshed of the proposed pipeline. Second, construction and the ongoing operation of the pipeline would alter land use/land cover in ways that diminish the value of ecosystem services, such as aesthetics, water supply, and timber and food production. Third, and in part due to a loss of scenic and quality-of-life amenities, there would be decreases in visitation, in-migration, tourism, small business development, plus a loss of jobs and personal income those activities would otherwise support.

Considering this eight-county region alone, estimated one-time costs range from \$65.1 to \$135.5 million. These one-time costs comprise lost property value and the value of ecosystem services lost during construction. Annual costs following the construction period include lower ecosystem service productivity in the MVP's right-of-way, lower property tax revenue due to the initial losses in property value, and dampened economic development. These total between \$119.1 and \$130.8 million per year and would persist for as long as the MVP right-of-way exists—that is, in perpetuity. (See "At a Glance," page iii for details.) Putting the stream of costs

into present value terms ¹ and adding the one-time costs, the total estimated cost of the MVP in the eight counties is between \$8.0 and \$8.9 billion.

The costs represented by the estimates presented here are what economists call "externalities," or "external costs," because they would be imposed on parties other than (external to) the company proposing to build the pipeline. Unlike the private (or internal) costs of the pipeline, external costs borne by the public do not affect the company's bottom-line. From an economic perspective, the presence of externalities is what demands public involvement in decisions about the MVP. Without consideration of all of the costs of the project, too much pipeline (which may mean any pipeline at all) is the inevitable result. FERC must consider the true bottom line and ensure that the full costs of the pipeline, especially those external costs imposed on the public, are rigorously examined and brought to bear on its decision about whether or not to permit the MVP project to proceed.

For reasons explained in the body of this report, estimates of external costs developed as part of this study and reported here are conservative. One reason is simply that there are categories of impacts that are beyond the scope of the study. These impacts include changes to sites or landscapes that have historical or cultural significance. Like lost aesthetic quality or a decrease in the capacity of the landscape to retain soil, filter water, or sequester carbon, historical and cultural impacts matter to humans and, therefore, can be expressed as monetary value. We have also not included the cost to communities of increased emergency response planning and capacity necessary during the operation of the proposed pipeline or of increased law enforcement, road maintenance and repair, or other costs that would accompany its construction.²

Another important category of cost not counted here is "passive use value." Passive use value includes the value to people of simply knowing an unspoiled natural area exists and the value of keeping such places unspoiled for the sake of some future direct or active use. In light of this, it is important to consider the estimates of economic costs provided here as a fraction of the total economic value put at risk by the proposed Mountain Valley Pipeline.

Finally, while this report covers many of the costs that *will* happen if the MVP is constructed and operated, it does not include an assessment of natural resource damage and other effects that *might* happen during construction and operation. For example, there is some probability that erosion of steep slopes and resulting sedimentation of streams and rivers will occur during construction. Similarly, there is some probability that there will be a leak and explosion somewhere along the length of the MVP during its lifetime. If, when, and where such events occur with the MVP, there will be clean-up and remediation costs, costs of fighting fires and reconstructing homes, businesses, and infrastructure, the cost of lost timber, wildlife habitat, and other ecosystem services, and most tragically, the cost of lost human life and health.³ The magnitude of these damages, multiplied by the probability that they will occur, yields additional "expected costs," which would then be added to the more certain costs estimated in this study. The same is true of the costs that could accrue after the MVP is no longer used and maintained.

To be clear, the costs estimated here—the effect on ecosystem services from clearing land for the pipeline corridor, the impact on land values resulting from buyers' concerns about pipeline safety, and reductions in economic vitality stemming from changes in the landscape—will occur with or without any discreet or extreme events like landslides or explosions ever happening. These impacts and their monetary equivalents are simply part of what will happen in West Virginia and Virginia if the MVP is approved, built, and operated.

¹ The present value of a perpetual stream of costs is the one-year cost divided by the 1.5% real discount rate recommended by the Office of Management and Budget for cost-benefit and cost-effectiveness analysis of public projects and decisions (Office of Management and Budget, 2015).

² As of this writing, a pilot study of these cost for one Virginia county in our study region is underway, with results expected in the coming weeks.

³ While no one was killed in the incident, one need look no further than the recent explosion of Spectra Energy's Texas Eastern gas transmission line in Pennsylvania to see such impacts. See, for example, https://stateimpact.npr.org/pennsylvania/2016/05/04/pa-pipeline-explosion-evidence-of-corrosion-found/

At a Glance:

The Mountain Valley Pipeline in Virginia and West Virginia Craig, Franklin, Giles, Montgomery, and Roanoke Counties in Virginia and Greenbrier, Monroe, and Summers Counties in West Virginia

- Miles of pipeline: 143
- Acres
 - o In the construction corridor and temporary roads and workspaces: 2449
 - In the permanent right-of-way (ROW): 861
 - o In permanent access roads and other facilities: 76
- Most impacted land cover types (ROW only): forest (664 acres) and pasture (142 acres)
- Parcels touched by ROW: 716
- Parcels in the 1.4-mile-wide evacuation zone: 8,221
- Residents and housing units in the evacuation zone: 20,389 people and 9,700 homes
- Parcels from which the pipeline would be visible: 78,553 or 31% of all parcels in the six counties for which detailed parcel data are available
- Baseline (no pipeline) property value at risk (and expected one-time cost due to the MVP):
 - o In the ROW: \$125.9 million (\$5.3 to \$16.4 million)
 - o In the evacuation zone: \$972.6 million (\$37.0 million)
 - In the viewshed: \$16.8 billion (to avoid double counting with lost aesthetic value under ecosystem services, this impact is not separately estimated)
- Total property value lost (a one-time cost): \$42.2 to \$53.3 million
- Resulting loss in property tax revenue (annual): \$243,500 to \$308,400
- > Lost ecosystem service value, such as for water and air purification, recreational benefits, and others:
 - Over the two-year construction period (a one-time cost): between \$22.9 and \$82.2 million
 - o In the ROW (annual): between \$4.1 and \$14.8 million
- ➤ Lost economic development opportunities due to the erosion of these counties' comparative advantages as attractive places to visit, reside, and do business. Under the scenarios described below, these could include:
 - Annual loss of recreation tourism expenditures of \$96.8 million that supports 1,073 jobs and \$24.3 million in payroll and generates \$4.8 million in state and \$2.6 million in local taxes
 - Annual loss of personal income of \$15.6 million due to slower growth in the number of retirees
 - Annual loss of personal income of \$2.1 million due to slower growth in sole proprietorships
- Total of estimated costs:
 - One-time costs (lost property value and lost ecosystem service value during construction)
 would total between \$65.1 to \$135.5 million
 - Annual costs (costs that recur year after year) would range from \$119.1 to \$130.8 million
 - Present discounted value of all future annual costs (discounted at 1.5%): \$7.9 to \$8.7
 billion
 - One-time costs plus the discounted value of all future annual costs: \$8.0 to \$8.9 billion

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ABBREVIATIONS AND TERMS

- **BTM:** Benefit Transfer Method, a method for estimating the value of ecosystem services in a study region based on values estimated for similar resources in other places
- **EIS:** Environmental Impact Statement, a document prepared under the National Environmental Policy Act analyzing the full range of environmental effects, including on the economy, of proposed federal actions, which in this case would be the approval of the Mountain Valley Pipeline
- **ESV:** Ecosystem Service Value, the effects on human well-being of the flow of benefits from an ecosystem endpoint to a human endpoint at a given extent of space and time, or more briefly, the value of nature's benefits to people
- **FERC:** Federal Energy Regulatory Commission, the agency responsible for preparing the EIS and deciding whether to grant a certificate of public convenience and necessity (i.e., whether to permit the pipeline)
- **HCA:** High Consequence Area, the area within which both the extent of property damage and the chance of serious or fatal injury would be expected to be significant in the event of a rupture failure
- MVP: Mountain Valley Pipeline, which in this report generally refers to the pipeline corridor itself
- **MVP LLC:** Mountain Valley Pipeline, LLC, a joint venture of EQT Midstream Partners, LP, NextEra US Gas Assets, LLC, Con Edison Gas Midstream, LLC, WGL Midstream, Vega Midstream LLC, and RGC Midstream, will own and construct the proposed Mountain Valley Pipeline
- **NEPA:** National Environmental Policy Act of 1970, which requires the environmental review of proposed federal actions, preparation of an EIS, and, for actions taken, appropriate mitigation measures

ROW: Right-of-Way, the permanent easement in which the pipeline is buried

AUTHOR'S NOTE

We are grateful for the assistance of POWHR—for "Protect Our Water, Heritage, Rights" (information at powhr.org)—coalition members and other groups in identifying local information sources and making contacts in the study region. These groups include Blue Ridge Land Conservancy, Border Conservancy, Chesapeake Climate Action Network, Greenbrier River Watershed Association, Preserve Bent Mountain, Preserve Craig, Preserve Franklin, Preserve Giles County, Preserve Greenbrier County, Preserve Monroe, Preserve Montgomery County, Va., Preserve the New River Valley, Preserve Roanoke, Roanoke Valley Cool Cities Coalition, Save Monroe, Summers County Residents Against the Pipeline, Virginia Chapter, Sierra Club, and Virginia Citizens Consumer Council.

We also thank Professor Stockton Maxwell of Radford University and his students John DeGroot and Bryan Behan for their assistance acquiring and processing spatial (GIS) data for the land value and visibility analyses. Key-Log Economics remains solely responsible for the content of this report, the underlying research methods, and the conclusions drawn. We have used the best available data and employed appropriate and feasible estimation methods but nevertheless make no claim regarding the extent to which these estimates will match the actual magnitude of economic effects if the MVP is built.

Cover Photo from Franklin County, Virginia courtesy of David Sumrell

BACKGROUND

The proposed Mountain Valley Pipeline (MVP) is a high-volume transmission pipeline intended, as described in filings with the Federal Energy Regulatory Commission (FERC), to transport up to two million dekatherms per day of natural gas from the Marcellus and Utica Shale region in West Virginia to markets in the Mid- and South-Atlantic Region of the United States (Mountain Valley Pipeline LLC, 2015a). MVP LLC partners have also indicated that the pipeline could facilitate export of liquefied natural gas to India or other overseas markets (Adams, 2015).

The majority of the pipeline, and the entire portion in the eight-county region considered in this study (Figure 1), would consist of 42-inch diameter pipe and would be operated at a nominal pressure of 1,480 pounds per square inch gauge (PSIG).

Along the way, the MVP would cross portions of the Jefferson National Forest, the Appalachian Trail, the Blue Ridge Parkway, and other public conservation, scenic, and natural areas. Its permanent right-of-way and temporary construction corridor—50 and 125 feet wide, respectively—would also cross thousands of private properties. Pipeline leaks and explosions, should they occur, would cause substantial physical damage and require evacuation of even wider swaths, affecting perhaps tens of thousands of homes, farms, and businesses. Still wider, but more difficult to gauge and estimate, are the zones within which the construction, operation, and presence of the pipeline would affect human well-being by changing the availability of ecosystem services such as clean air, water supply, and recreational opportunities. This would occur as the pipeline creates an unnatural linear feature on a landscape that otherwise remains largely natural or pastoral and dampens the attractiveness of the affected region as a place to live, visit, retire, or do business.

To date, these negative effects and estimates of their attendant economic costs have not received much attention in the otherwise vigorous public debate surrounding the proposed MVP. This report, commissioned jointly by several regional and local groups, is both an attempt to understand the nature and potential magnitude of the economic costs of the MVP in a particular eight-county area, as well as to provide an example for FERC as it proceeds with its process of analyzing and weighing the full effects of the proposed MVP along its entire length and, by extension, throughout the region in which its effects will occur.

Policy Context

Before construction can begin, the MVP must be approved by FERC. That approval, while historically granted to pipeline projects, depends on FERC's judgment that the pipeline would meet a public "purpose and need." Because the approval would be a federal action, FERC must also comply with the procedural and analytical requirements of the National Environmental Policy Act (NEPA). These include requirements for public participation, conducting environmental impact analysis, and writing an Environmental Impact Statement (EIS) that evaluates all of the relevant effects. Of particular interest here, such relevant effects include direct, indirect, and cumulative effects on or mediated through the economy. As the NEPA regulations state,

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Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), <u>aesthetic</u>, <u>historic</u>, <u>cultural</u>, <u>economic</u>, <u>social</u>, <u>or health</u>, <u>whether direct</u>, <u>indirect</u>, <u>or cumulative</u>. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial (emphasis added, 36 CFR 1508.b).

It is important to note NEPA does not require that federal actions—which in this case would be approving or denying the MVP—necessarily balance or even compare benefits and costs. NEPA is not a decision-making law, but rather a law requiring decisions be supported by an as full as possible accounting of the reasonably foreseeable effects of federal actions on the natural and human environment. It also requires that citizens have opportunities to engage in the process of analyzing and weighing those effects.

Moreover, FERC's own policy regarding the certification of new interstate pipeline facilities (88 FERC, para. 61,227) requires adverse effects of new pipelines on "economic interests of landowners and communities affected by the route of the new pipeline" be weighed against "evidence of public benefits to be achieved [by the pipeline]" (88 FERC, para. 61,227; Hoecker, Breathitt, & He'bert Jr., 1999, pp. 18–19). Further, "...construction projects that would have residual adverse effects would be approved only where the public benefits to be achieved from the project can be found to outweigh the adverse effects" (p. 23).

In principle, this policy is in line with the argument, on economic efficiency grounds, that the benefits of a project or decision should be at least equal to its cost, including external costs. However, the policy's guidance regarding what adverse effects must be considered and how they are measured is deeply flawed. The policy states, for example, "if project sponsors...are able to acquire all or substantially all, of the necessary right-of-way by negotiation prior to filing the application...it would not adversely affect any of the three interests," which are pipeline customers, competing pipelines, and "landowners and communities affected by the route of the new pipeline" (Hoecker et al., 1999, pp. 18, 26). The Commission's policy contends the only adverse effects that matter are those affecting owners of properties in the right-of-way. Even for a policy adopted in 1999, this contention is completely out of step with long-established understanding that development that alters the natural environment has negative economic effects.

A further weakness of the FERC policy is that it relies on applicants to provide information about benefits and costs. The policy's stated objective "is for the applicant to develop whatever record is necessary, and for the Commission to impose whatever conditions are necessary, for the Commission to be able to find that the benefits to the public from the project outweigh the adverse impact on the relevant interests" (Hoecker et al., 1999, p. 26). The applicant therefore has an incentive to be generous in counting benefits⁴ and parsimonious in counting the costs of its proposal. Under these

⁴ MVP LLC has published estimates of economic benefits in the form of employment and income stemming from the construction and operation of the MVP (Ditzel, Fisher, & Chakrabarti, 2015a, 2015b). As has been well documented elsewhere, these studies suffer from errors in the choice and application of methods and in assumptions made regarding the long-run economic stimulus represented by the MVP. Most significantly, the studies make no mention of likely

circumstances, it seems unlikely that the Commission's policy will prevent the construction of pipelines for which the full costs are greater than the public benefits they would actually provide. Indeed, until just recently, FERC has never rejected a pipeline proposal (van Rossum, 2016).

Because MVP LLC failed to acquire a sufficient portion of the right-of-way and other federal agencies, including the US Forest Service, needed to evaluate how the MVP would affect resources under its stewardship, the Commission issued a Notice of Intent to prepare an EIS in February of 2015 (Federal Energy Regulatory Commission, 2015). The process began with a series of scoping meetings where members of the public could express their general thoughts on the pipeline as well as what effects should fall under the scope of the EIS. Interested parties also had the opportunity to submit comments online and through the mail.

Much of what FERC heard from citizens echoed and expanded upon the list of potential environmental effects listed in its Notice of Intent. Of those, several including "domestic water sources..., Appalachian Trail..., Residential developments and property values; Tourism and recreation" and others are particularly important as environmental effects that resonate in the lives of people. These effects can take the form of economic costs external to MVP LLC that would be borne by individuals, businesses, and communities throughout the landscape the MVP would traverse.

Based on a review of written comments submitted to FERC in January through March of 2015, citizens do seem to have emphasized these issues. Key issues include economic impacts, environmental degradation, public safety, property value effects, and issues related to cultural and historical resources (Pipeline Information Network, 2015).

Study Objectives

Given the policy setting and what may be profound effects of the proposed MVP on the people and communities of Virginia and West Virginia, we have undertaken this study to provide information of two types:

- 1. An example of the scope and type of analyses that FERC could, and should, undertake as part of its assessment of the environmental (including economic) effects of the MVP.
- 2. An estimate of the potential magnitude of economic effects in this eight-county subset of the landscape where the MVP's environmental effects will be felt.

We do not claim the estimates below represent the total of all potential costs that would attend the construction, operation, and presence of the pipeline. Specifically, we have included several categories of cost: "passive-use value," including the value of preserving the landscape without a pipeline for

economic costs, and their projections of long-term benefits extend far beyond the time period (of a year or so) within which economic impact analysis is either useful or appropriate. See Phillips (Phillips, 2015b) for details on these shortcomings.

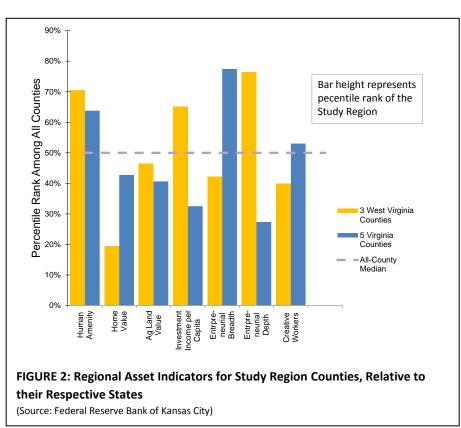
⁵ Passive-use values include *option* value, or the value of preserving a resource unimpaired for one's potential future use; bequest value, which is the value to oneself of preserving the resource for the use of others, particularly future generations; and existence value, which is the value to individuals of simply knowing that the resource exists, absent any expectation of future use by oneself or anyone else. In the case of the MVP, people who have not yet visited the Blue Ridge Parkway or otherwise spent vacation time and dollars in the region are better off knowing that the setting for their planned activities is

future direct use, increases in the cost of community services like road maintenance and emergency response that may increase due to the construction and operation of the pipeline,⁶ and probabilistic damages to natural resources, property, and human health and lives in the event of mishaps during construction and leaks/explosions during operation.

Therefore, our figures should be understood to be conservative, lower-bound estimates of the true total cost of the MVP in the sub-region and, of course, they do not include costs for the remainder of the region proposed for the MVP. We urge that the FERC augment the results of this study with its own similar analysis for the entire region and with additional research to determine the costs of community services and other relevant classes of costs not counted here.

Current Economic Conditions in the Study Region

Our geographic focus is an eight-county region encompassing Craig, Franklin, Giles, Montgomery, and Roanoke counties in Virginia⁷ as well as Greenbrier, Monroe, and Summers counties in West Virginia. This 3,964-squaremile region supports diverse land uses, including wild and pristine forests, both the Appalachian Trail and Blue Ridge Parkway, thriving cities, working farms, and extensive commercial timberland. These natural, cultural, and economic assets are among the reasons more than



a beautiful aesthetically pleasing landscape. What future visitors would be willing to pay to maintain that possibility would be part of the "option value" of an MVP-free landscape.

⁶ As with communities impacted by the shale gas boom itself, communities along the pipeline can expect spikes in crime as transient workers come and go, more damage to roads under the strain of heavy equipment, increases in physical and mental illnesses including asthma, depression, anxiety, and others triggered by exposure to airborne pollutants, to noise, and to emotional, economic, and other stress. See, for example, Ferrar et al. (2013), Healy (2013), Fuller (2007), Campoy, (2012), and Mufson (2012).

⁷ Two independent cities, Salem and Roanoke, lie within the geographic borders of Roanoke County. In this report, subject to some limitations where noted, statistics, estimates, and other information labeled as "Roanoke County" reflect totals for the County plus the two independent cities. The City of Radford at the southern edge of Montgomery County lies on the other side of the New River from the rest of the County, and is considered in this study to be far enough removed from the proposed MVP that it is not included in the statistics or estimates.

342,000 people call this region home and an even larger number visit each year for hiking, boating, sightseeing, festivals, weddings, and other events.

Statistics from the Center for the Study of Rural America, part of the Federal Reserve Bank of Kansas City, highlight the extent to which the region possesses the right conditions for resilience and economic success in the long run (Low, 2004). These data show that the study region has a higher human amenity index (based on scenic amenities, recreational resources, and access to health care), and strong entrepreneurship relative to most West Virginia or Virginia counties (Figure 2).8 The West Virginia counties are stronger in terms of investment income per capita than the average for other West Virginia counties. The five Virginia counties have slightly more creative workers, as a percentage of the workforce, than the average for the Commonwealth.

More traditional measures of economic performance suggest the region is generally strong and resilient, though there are some differences among the Virginia and West Virginia Counties. From 2000 through 2014, for example:

- Population in the study region grew by 9.6%, compared to a -0.5% loss of population for nonmetro Virginia and West Virginia¹⁰
 - Population in the Virginia section of the study region grew by 10.5%, compared to a
 -0.2% loss of population for non-metro Virginia
 - Population in the West Virginia section of the study region grew by 0.8%, compared to a
 -1.1% loss of population for non-metro West Virginia
- Employment in the study region grew by 3.5%, compared to a -4.0% loss for non-metro Virginia and West Virginia
 - Employment in the Virginia section of the study region grew by 3.4%, compared to a
 -6.7% loss of employment for non-metro Virginia
 - Employment in the West Virginia section of the study region grew by 5.1%, compared to a 2.4% growth of employment for non-metro West Virginia
- Personal income in the study region grew by 20.6%, compared to 15.1% for non-metro Virginia and West Virginia
 - Personal income in the Virginia section of the study region grew by 20.7%, compared to
 13.1% growth of personal income for non-metro Virginia

⁸ Note that the Kansas City Fed's statistics have not been updated since 2004-2006, and conditions in and outside the study region have undoubtedly changed. Some of these relative rankings may no longer hold.

⁹ These data are from Headwaters Economics (2015), US Bureau of Economic Analysis (2015), and US Bureau of the Census (2014, 2015).

¹⁰ "Non-metro Virginia" and "Non-metro West Virginia" comprises those counties that are not a part of a federally defined metropolitan statistical area (MSA). While the Virginia counties in the study region are in MSAs, each of the study region counties are predominantly rural in landscape and character and are much more like other non-metro counties than they are like Northern Virginia or Tidewater, for example. Therefore, we believe that averages for non-metro Virginia provide a more appropriate point of comparison than statistics that include the Commonwealth's more urban areas. None of the West Virginia counties in the study region are part of an MSA.

- Personal income in the West Virginia section of the study region grew by 19.7%,
 compared to 19.6% growth of personal income for non-metro West Virginia
- On average, earnings per job in the study region are higher, by about \$7,400/year, than the average for non-metro Virginia and West Virginia
 - Earnings per job in the Virginia section of the study region are higher, by about \$9,300/year, than the average for non-metro Virginia
 - Earnings per job in the West Virginia section of the study are lower, by about \$5,100/year than the average for non-metro West Virginia
- Per capita income is higher in the study region, by \$4,100/year, than the average for non-metro
 Virginia and West Virginia
 - Per capita income in the Virginia section of the study region is higher, by about \$4,400/year, than the average for non-metro Virginia
 - Per capita income in the West Virginia section of the study region, while growing, is lower, by about \$1,400/year, than the average for non-metro West Virginia
- The unemployment rate in the study region is 2.5%, compared to 2.3% for non-metro Virginia and West Virginia, during 2000-2014
 - The unemployment rate in the Virginia section of the study region is 2.9%, compared to an unemployment rate of 3.2% for non-metro Virginia, during 2000-2014
 - The unemployment rate in the West Virginia section of the study region is 0.3%, compared to an unemployment rate of 1.0% for non-metro West Virginia, during 2000-2014

These trends are consistent with what regional economists McGranahan and Wojan have called the "Rural Growth Trifecta" of outdoor amenities, a creative class of workers, and a strong "entrepreneurial context" (innovation-friendliness) (2010). Individual workers, retirees, and visitors are attracted to the natural beauty of the region while entrepreneurs are attracted by the quality of the environment, by the quality of the workforce, and by existing support from local government. Workers, for their part, are retained and nurtured by dynamic businesses that fit with the landscape and lifestyle that attracted them to the region in the first place. As further indication of this dynamic, consider since 2000:9

- The region's population growth has been primarily due to in-migration
- The proportion of the population 65 years and older has increased from 14.5% to 15.5%
- Proprietors' employment is up by 28.9%
- Non-labor income (primarily investment returns and age-related transfer payments like Social Security) is up by 39.0%.

These trends suggest entrepreneurs and retirees are moving to (or staying in) this region, bringing their income, expertise, and job-creating energy with them.

Temporary residents—tourists and recreationists attracted to the natural amenities of the region—and the businesses that serve them are also important parts of the region's economy. Tourists spent more

than \$1.2 billion in the study region in 2014. The companies that directly served those tourists employed 11,642 people, or 15.4% of all full- and part-time workers (Dean Runyan Associates, 2015; Headwaters Economics, 2015; Virginia Tourism Corporation, 2015).

It is in this context the potential economic impacts of the MVP must be weighed and the apprehension of the region's residents understood. Many believe the construction and operation of the pipeline will kill, or at least dampen, the productivity of the proverbial goose that lays its golden eggs in the region. This could result in a slower rate of growth in the region and worse economic outcomes. More dire is the prospect that businesses will not be able to maintain their current levels of employment. Just as retirees and many businesses can choose where to locate, visitors and potential visitors have practically unlimited choices for places to spend their vacation time and expendable income. If the study region loses its amenity edge, other things being equal, people will go elsewhere, and this region could contract.

Instead of a "virtuous circle" with amenities and quality of life attracting/retaining residents and visitors, who improve the quality of life, which then attracts more residents and visitors, the MVP could tip the region into a downward spiral. In that scenario, loss of amenity and risk to physical safety would translate into a diminution or outright loss of the use and enjoyment of homes, farms, and recreational and cultural experiences. Some potential in-migrants would choose other locations and some long-time residents would move away, draining the region of some of its most productive members. Homeowners would lose equity as housing prices follow a stagnating economy. With fewer people to create economic opportunity, fewer jobs and less income will be generated. Communities could become hollowed out, triggering a second wave of amenity loss, out-migration, and further economic stagnation.

ENVIRONMENTAL-ECONOMIC EFFECTS AND WHERE THEY WOULD OCCUR

In the remainder of this report, we follow this potential cycle and estimate three distinct types of economic consequences.

First, corresponding to the direct biophysical impacts of the proposed pipeline, are effects on ecosystem services—the benefits nature provides to people for free, like purified water or recreational opportunities, that will become less available and/or less valuable due to the MVP's construction and operation. Second are effects on property value as owners and would-be owners choose properties farther from the pipeline's right-of-way, evacuation zone, and viewshed. Third and finally are more general economic effects caused by a dampening of future growth prospects or even a reversal of fortune for some industries.

We begin with an exploration of the geographic area over which these various effects will most likely be felt.

Impact Zones within the Study Region

Construction of the pipeline corridor itself would require clearing an area at least 125 feet (38.1 m) wide. (It would be wider in some areas depending on slope.) After construction, the permanent right-

of-way (ROW) would be 50 feet wide along the entire length of the pipeline. Within the construction zone and right-of-way is where the greatest disruption of ecosystem processes will occur, so these zones are where reductions in ecosystem service value (ESV) emanate. Since we are estimating ecosystem service values at their point of origin, we will focus on the ROW and the construction zone, as well as temporary and permanent access roads, temporary workspaces, and permanent surface infrastructure.

Operated at its intended pressure and due to the inherent risk of leaks and explosions, the pipeline would present the possibility of having significant human and ecological consequences within a large "High Consequence Area" and an even larger evacuation zone. A High Consequence Area (HCA) is "the area within which both the extent of property damage and the chance of serious or fatal injury would be expected to be significant in the event of a rupture failure" (Stephens, 2000, p. 3). Using Stephens' formula, the HCA for this pipeline would have a radius of 1,095 feet (333.9 m). The evacuation zone is defined by the distance beyond which an unprotected human could escape burn injury in the event of the ignition or explosion of leaking gas (Pipeline Association for Public Awareness, 2007, p. 29). There would be a potential evacuation zone with a radius of at least 3,583 feet (1092.1 m). (See map, Figure 3, for a close-up of these zones in part of the study region.) An explosion would undoubtedly affect ecosystem processes within the HCA and possibly the evacuation zone, but given the probability of an explosion at a particular point along the pipeline at a given time is small, we do not include the additional effects *on ecosystem service value* due to explosion in the cost estimates.

Effects on land value are another matter, and it is reasonable to consider land value impacts through both the high consequence area and the evacuation zone. As Kielisch (2015) stresses, the value of land is determined by human perception, and

"I saw no other option than to cancel my home building project once the MVP was proposed to cross the property."

— Christian Reidys, Blacksburg, VA

property owners and would-be owners have ample reason to perceive risk to property near high-pressure natural gas transmission pipelines. Traditional news reports, YouTube, and other media reports attest to the occurrence and consequences of pipeline leaks and explosions, which are even more prevalent for newer pipelines than for those installed decades ago (Smith, 2015). Information about pipeline risks translates instantly into buyers' perceptions and, therefore, into the chances of selling properties exposed to those risks, into prices offered for those properties, and, for people who already own such properties, diminished enjoyment of them (Freybote & Fruits, 2015).

In addition, loss of view quality would be expected for properties both near to and far from the pipeline corridor. Unlike leaks and explosions, view quality impacts will occur with certainty. If the pipeline is built, people will see the corridor as a break in a once completely forested hillside, and their "million-

¹¹ The maximum operating pressure proposed for the MVP is 1,480 PSIG, but the source data for this evacuation distance is a table with pressure in 100 PSIG increments. The full evacuation distance would be between 3,583 feet and 3,709 feet, the distance recommended for a 42" pipeline operated at 1,500 PSIG. The upshot for this study is a slightly more conservative estimate of the effect of the MVP on property value.

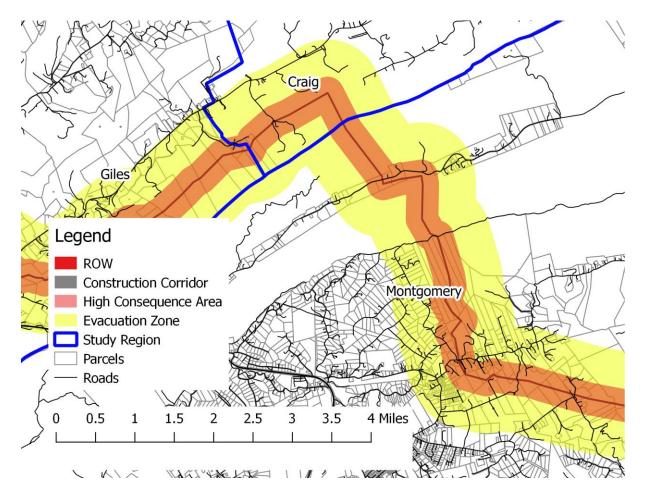


FIGURE 3: Right-of-Way, Construction, High Consequence, and Evacuation Areas

Note that the overlay of the HCA (in rose) and the evacuation zone (in yellow) shows up as the orange band in the map. The ROW covers much of the construction corridor, leaving a thin band of grey visible.

Sources: MVP route digitized from online maps and MVP LLC filings (http://mountainvalleypipeline.info/maps/); Counties and roads from USGS (http://nationalmap.gov; Parcels from public records in Giles and Montgomery County, respectively. (Parcel boundaries are not available in electronic form for Craig County.)

dollar" view will be diminished. Therefore, for our analysis of land value, we consider any place where there is considerable potential to see the pipeline corridor to be within its direct impact zone. (See map, Figure 7, in the land value section for the results of the visibility analysis.)

Beyond the loss of ecosystem services stemming from the conversion of land in the ROW, the loss of property value resulting from the chance of biophysical impacts, or the certainty of impacts on aesthetics, the proposed MVP would also diminish physical ecosystem services, scenic amenity, and passive-use value that are realized or enjoyed beyond the evacuation zone and out of sight of the pipeline corridor. The people affected include residents, businesses, and landowners throughout the study region, as well as past, current, and future visitors to the region. The impacts on human well-being would be reflected in economic decisions such as whether to stay in or migrate to the study region, whether to choose the region as a place to do business, and whether to spend scarce vacation time and dollars near the MVP instead of in some other place.

To the extent the MVP causes such decisions to favor other areas, less spending and slower economic growth in the study region would be the result. A secondary effect of slower growth would be further reductions in land value, but in this study we consider the primary effects in terms of slower population, employment, and income growth in key sectors. Table 1 summarizes the types of economic values considered in this study and the zones in which they are estimated.

TABLE 1: Geographic Scope of Effects

A check mark indicates those zones/effects for which estimates are included in this study. The "X's" indicate areas for future study.

Values / Effects	Right-of-Way and Construction Zone	High Consequence Area	Evacuation Zone	Pipeline Viewshed	Entire Study Region	The World Beyond the Study Region
Ecosystem Services	✓	а	a	a,b	x a,b	×
Land / Property Value	√ c	√ d	√ d	√ e	×	n/a
Economic Develop- ment Effects	f	f	f	f	√	n/a

Notes:

- a. Changes in ecosystem services that are felt beyond the ROW and Construction zone may be key drivers of "Economic Development Effects," but they are not separately estimated to avoid double counting.
- b. With the exception of the impact on visual quality, we do not estimate the spillover effects of alteration of the ecosystem within the ROW on the productivity of adjacent areas. The ROW, for example, provides a travel corridor for invasive species that could reduce the integrity and ecosystem productivity of areas that, without the MVP would remain core ecological areas, interior forest habitat, etc.
- c. We estimate land value effects for the ROW but not for the construction zone.
- d. Properties in the HCA are treated as though there is no additional impact on property value relative to the impact of being in the evacuation zone.
- e. To avoid double-counting, changes in property value due to an altered view from the property are considered to be part of lost aesthetic value under the "Ecosystem Services" section.
- f. Economic development effects related to these subsets of the study region are included in estimates for the study region.

EFFECTS ON ECOSYSTEM SERVICE VALUE

The idea that people receive benefits from nature is not at all new, but "ecosystem services" as a term describing the phenomenon is more recent, emerging in the 1960s (Millennium Ecosystem Assessment, 2003). "Benefits people obtain from ecosystems" is perhaps the simplest and most commonly heard

definition of ecosystem services (Reid et al., 2005). Other definitions abound, including the following from Gary Johnson of the University of Vermont:

Ecosystem services are the effects on human well-being of the flow of benefits from an ecosystem endpoint to a human endpoint at a given extent of space and time (2010).

This definition is helpful because it emphasizes services are not necessarily things—tangible bits of nature—but rather, they are the effects on people of the functions of the natural world. It also makes clear ecosystem services happen or are produced and enjoyed in particular places and at particular times.

No matter the definition, different types of ecosystems (forest, wetland, cropland, urban areas) produce different arrays of ecosystem services, and/or produce similar services to greater or lesser degrees. This is true for the simple reason that some ecosystems or land uses produce a higher flow of benefits than others.

"Ecosystem services" is sometimes lengthened to "ecosystem goods and services" to make it explicit that some are tangible, like physical quantities of food, water for drinking, and raw materials, while others are truly services, like cleaning the air and providing a place with a set of attributes that are conducive to recreational experiences or aesthetic enjoyment. We use the simpler "ecosystem services" here. Table 2, lists the provisioning, regulating, and cultural ecosystem services included in this study.

At a conceptual level, we estimate the potential effects of the MVP on ecosystem service value by identifying the extent to which the construction and long-term existence of the pipeline would change land cover or land use, resulting in a change in ecosystem service productivity. Lower productivity, expressed in dollars of value per acre per year, means fewer dollars' worth of ecosystem service value produced each year.

Construction would essentially strip bear the 125-foot-wide construction corridor. Once construction is complete and after some period of recovery, the 50-foot-wide right-of-way will be occupied by a different set of ecosystem (land cover) types than were present before construction. By applying peracre ecosystem service productivity estimates (denominated in dollars) to the various arrays of ecosystem service types, we can estimate ecosystem service value produced per year in the periods before, during, and after construction. The difference between annual ecosystem service value *during* construction and *before* construction is the annual loss in ecosystem service value *of* construction. The difference between the annual ecosystem service value during ongoing operations (i.e., the value produced in the ROW) and the before-construction baseline (no pipeline) is the annual ecosystem service cost that will be experienced indefinitely.

TABLE 2: Ecosystem Services Included in Valuation

Provisioning Services^a

Food Production: The harvest of agricultural produce, including crops, livestock, and livestock by-products; the food value of hunting, fishing, etc.; and the value of wild-caught and aquaculture-produced fish.

Associated land usesb: Cropland, Pasture/Forage, Forest

Raw Materials: Fuel, fiber, fertilizer, minerals, and energy.

Associated land uses^b: Forest

Water Supply: Filtering, retention, storage, and delivery of fresh water—both quality and quantity—for drinking, watering livestock, irrigation, industrial processes, hydroelectric generation, and other uses.

Associated land uses^b: Forest, Water, Wetland

Regulating Services^a

Air Quality: Removing impurities from the air to provide healthy, breathable air for people.

Associated land uses^b: Shrub/Scrub, Forest, Urban Open Space

Biological Control: Inter- and intra-specific interactions resulting in reduced abundance of species that are pests, vectors of disease, or invasive in a particular ecosystem.

Associated land uses^b: Cropland, Pasture, Grassland, Forest

Climate Regulation: Storing atmospheric carbon in biomass and soil as an aid to the mitigation of climate change, and/or keeping regional/local climate (temperature, humidity, rainfall, etc.) within comfortable ranges.

Associated land uses^b: Pasture/Forage, Grassland, Shrub/Scrub, Forest, Wetland, Urban Open Space, Urban Other

Erosion Control: Retaining arable land, stabilizing slopes, shorelines, riverbanks, etc.

Associated land uses^b: Cropland, Pasture/Forage, Grassland, Shrub/Scrub, Forest

Pollination: Contribution of insects, birds, bats, and other organisms to pollen transport resulting in the production of fruit and seeds. May also include seed and fruit dispersal.

Associated land uses^b: Cropland, Pasture/Forage, Grassland, Forest

Protection from Extreme Events: Preventing and mitigating impacts on human life, health, and property by attenuating the force of winds, extreme weather events, floods, etc.

Associated land uses^b: Forests, Urban Open Space, Wetland

Soil Fertility: Creation of soil, inducing changes in depth, structure, and fertility, including through nutrient cycling.

Associated land uses^b: Cropland, Pasture/Forage, Grassland, Forest

Waste Treatment: Improving soil and water quality through the breakdown and/or immobilization of pollution.

Associated land uses^b: Cropland, Pasture/Forage, Grassland, Shrub/Scrub, Forest, Water, Wetland

Water Flows: Regulation by land cover of the timing of runoff and river discharge, resulting in less severe drought, flooding, and other consequences of too much or too little water available at the wrong time or place.

Associated land usesb: Forests, Urban Open Space, Urban Other

Cultural Services^a

Aesthetic Value: The role that beautiful, healthy natural areas play in attracting people to live, work, and recreate in a region.

Associated land uses^b: Forest, Pasture/Forage, Urban Open Space, Wetland

Recreation: The availability of a variety of safe and pleasant landscapes—such as clean water and healthy shorelines—that encourage ecotourism, outdoor sports, fishing, wildlife watching, hunting, etc.

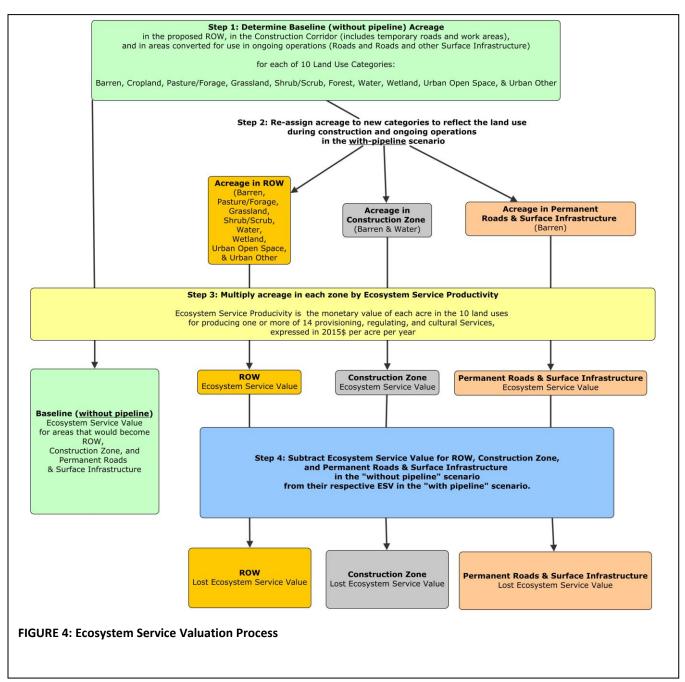
Associated land usesb: Cropland, Forest, Water, Wetland, Urban Open Space, Urban Other

Notes:

- a. Descriptions follow Balmford (2010, 2013), Costanza et al. (1997), Reid et al. (2005), and Van der Ploeg, et al. (2010).
- b. "Associated Land Uses" are limited to those for which per-unit-area values are available in this study.

In addition to the ROW and construction corridor, the MVP would require the construction of various temporary and permanent access roads, temporary work areas, and several areas for maintenance facilities. All temporary roads and temporary work areas are treated as though they are part of the construction zone. Permanent roads and installations are treated separately. Note that many of the access roads already exist and will simply be used for pipeline access. Since there is no change in the land use for those roads, there is no loss in ecosystem service value associated with them. It is only when areas are converted from forest, pasture, or other land covers to the developed use (a road or surface facility) that ecosystem service value is altered.

This overall process is illustrated in Figure 4 and the details of our methods, assumptions, and calculations are described in the following two sub sections.



Ecosystem Service Estimation Methods

Economists have developed widely used methods to estimate the monetary value of ecosystem services and/or natural capital. The most widely known example was a study by Costanza et al. (1997) that valued the natural capital of the entire world. That paper and many others employ the "benefit transfer method" or "BTM" to establish a value for the ecosystem services produced or harbored from a particular place. According to the Organization for Economic Cooperation and Development, BTM is "the bedrock of practical policy analysis," particularly in cases such as this when collecting new primary data is not feasible (OECD, 2006).

As the name implies, BTM takes a rate of ecosystem benefit delivery calculated for one or more "source areas" and applies that rate to conditions in the "study area." As Batker et al. (2010) state, the method is very much like a real estate appraiser using comparable properties to estimate the market value of the subject property. It is also similar to using an existing or established market or regulated price, such as the price of a gallon of water, to estimate the value of some number of gallons of water supplied in some period of time. The key is to select "comps" (data from source areas) that match the circumstances of the study area as closely as possible.

Typically, values are drawn from previous studies estimating the value of various ecosystem services from similar land cover or ecosystem types. Also, it is benefit (in dollars) per-unit-area-per-year in the source area that is transferred and applied to the number of hectares or acres in the same land cover/biome in the study area. For example, data for the source area may include the value of forest land for recreation. In that case, one would apply the per-acre value of recreation from the source area's forestland to the number of acres of forestland in the study area. Multiplying that value by the number of acres of forestland in the study area produces the estimate of the value of the study area's forests to recreational users. Furthermore, it is important to use source studies that are from regions with underlying economic, social, and other conditions similar to the study area.

Following these principles as well as techniques developed by Esposito et al. (2011), Esposito (2009), and Phillips and McGee (2014, 2016a), and as illustrated in Figure 4, we employ a four-step process to evaluate the short-term and long-term effects of the MVP on ecosystem service value in our study region. The steps are described in greater detail below, but in summary, they are:

- 1. Assign land and water in the study to one of 10 land uses based on remotely sensed (satellite) data in the National Land Cover Dataset (NLCD) (Fry et al., 2011). This provides the array of land uses for estimating baseline or "without MVP" ecosystem service value.
- 2. Re-assign or re-classify land and water to what the land cover would most likely be during construction and during ongoing operation.
- 3. Multiply acreage by per-acre ecosystem service productivity (the "comps,") (in dollars per acre per year) to obtain estimates of annual aggregate ecosystem service value under the baseline/no MVP scenario, for the construction corridor (and period), and for the ROW during

¹² See also Esposito et al. (2011), Flores et al. (2013), and Phillips and McGee (2014) for more recent examples.

ongoing operation.

For simplicity and given the two-year construction period, we assume the construction corridor will remain barren for a full two-year period. We recognize revegetation will begin to occur soon after the trench is closed and fill and soil are returned, but it will still be some time until something like a functioning ecosystem has actually been restored.

4. Subtract baseline (no pipeline) ESV from ESV (with pipeline) for the construction period (and in the construction corridor) and from ESV during ongoing operations (in the ROW) to obtain estimates of the ecosystem service costs imposed annually during the construction and operations period, respectively.

Step 1: Assign Land to Ecosystem Types or Land Uses

The first step in the process is to determine the area in the 10 land use groups in the study region. This determination is made using remotely sensed data from the National Land Cover Database (NLCD) (Fry et al., 2011). Satellite data provides an image of land in one of up to 21 land cover types at the 30-meter level of resolution;¹³ 15 of these land cover types are present in the study region (Table 3 and Figure 5).

TABLE 3: Land Area Affected By MVP, Study Region Total (See Also Figure 6)

Land Use	Baseline acreage in ROW	Baseline acreage in construction corridor, including temp work zones, etc.	Baseline acreage in permanent surface infrastructure	
Urban Other	6.6	22.9		1.3
Urban Open Space	23.9	85		3.3
Wetland	0.5	1.4		0
Water	0.8	2.5		0
Forest	663.7	1781.4		54
Shrub/Scrub	0.5	2		0
Grassland	3.6	10.5		0.4
Pasture/Forage	141.5	485.3		15.6
Cropland	11.9	32.3		0.9
Barren	8.2	26.1		0.2
Total	861.2	2449.4		75.7

Looking forward to the final step, we will use land use categories to match per-acre ecosystem value estimates from source areas to the eight-county study region. Unfortunately, value estimates are not available for all of the detailed land use categories present in the region. We therefore simplify the NLCD classification by combining a number of classifications into larger categories for which per-acre

¹³ Because 30 meters is wider than the right-of-way and not much narrower than the 125-foot construction corridor, we resample the NLCD data to 10m pixels, which breaks each 30m-by-30m pixel into 9 10m-by-10m pixels. This allows for a closer approximation of the type and area of land cover in the proposed ROW and construction corridor.

values are more available. Specifically, low-, medium-, and high-intensity development are grouped as "urban other," and deciduous, evergreen, and mixed forest are grouped as "forest."

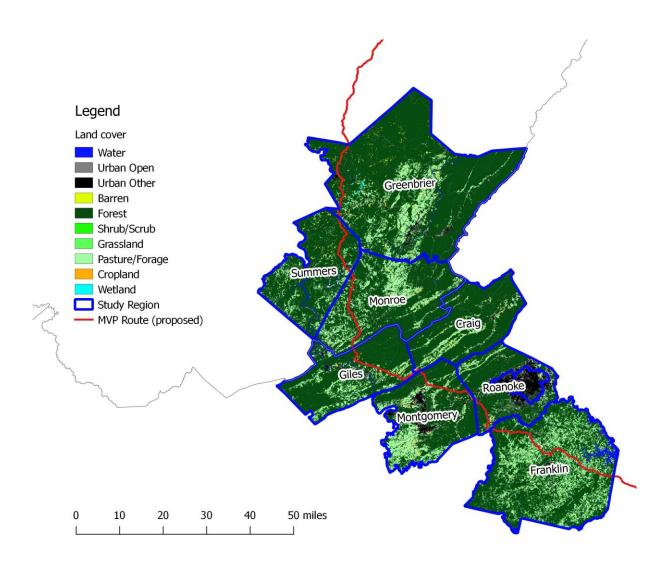
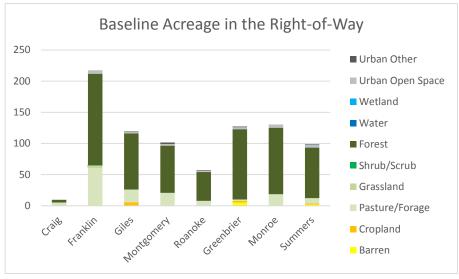


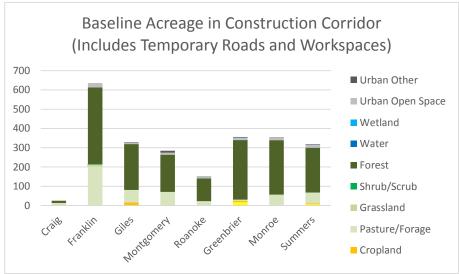
FIGURE 5: Land Use in the Study Region, as Classified for Ecosystem Service Valuation

Land cover for the entire study region is shown to display the overall range and pattern of land use. The ecosystem service valuation itself covers only those portions of the study region that would be occupied by the MVP right-of-way and construction corridor.

Sources: Land Cover from National Land Cover Database (Fry, et al. 2011); MVP route digitized from online maps and MVP LLC filings (http://mountainvalleypipeline.info/maps/); Counties from USGS (http://nationalmap.gov).

In addition and for two reasons, we add land in the NLCD category of "woody wetlands" to the "forest" category for two reasons. First, these wetlands would normally become forest in the study region (Johnston, 2014; Phillips & McGee, 2016a). Second, wetlands possess some of the highest per-acre values for several ecosystem services. To avoid over-estimating the ecosystem services contribution of "woody wetlands," we count them as "forest" instead of "wetland."





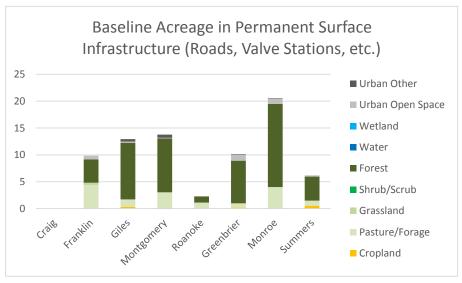


FIGURE 6: Baseline (Pre-MVP) Land Use, by County, in the Row, Construction Zones, and Permanent Surface Infrastructure. (See also Table 3.)

In the end, at least for baseline (no pipeline) conditions, we have land in 10 land uses. The total area that would be disturbed in the construction corridor and temporary roads and other work areas is 2,449 acres, of which 861 acres would be occupied by the permanent right-of-way. An additional 76 acres would be devoted to permanent access roads and other installations on the surface. Figure 6 shows the distribution of acreage in the ROW, construction zone, and in land needed for permanent surface infrastructure by county and pre-MVP, or baseline land use.

Step 2: Re-assign Acreage to New Land Cover Types for the Construction and Operation Periods

We assume all land in the construction corridor will be "barren" or at least possess the same ecosystem service productivity profile as naturally-occurring barren land for the duration of the construction period. Water will remain water during construction. Table 4 lists the reassignment assumptions in detail.

TABLE 4: Land Cover Reclassification

NLCD Category	Reclassification for Baseline	Reclassification for Construction	Reclassification for Ongoing Operation in the ROW	Reclassification for Ongoing Operation Roads and Surface Infrastructure
Barren Land	Barren	Barren	Barren	Barren
Cultivated Crops	Cropland	Barren	Pasture/Forage	Barren
Pasture/Hay	Pasture/Forage	Barren	Pasture/Forage	Barren
Grassland/Herbaceous	Grassland	Barren	Grassland	Barren
Shrub/Scrub	Shrub/Scrub	Barren	Shrub/Scrub	Barren
Deciduous Forest	Forest	Barren	Shrub/Scrub	Barren
Evergreen Forest	Forest	Barren	Shrub/Scrub	Barren
Mixed Forest	Forest	Barren	Shrub/Scrub	Barren
Woody Wetlands	Forest	Barren	Shrub/Scrub	Barren
Open Water	Water	Water	Water	Barren
Emergent Herbaceous Wetlands	Wetland	Barren	Wetland	Barren
Developed, Open Space	Urban Open Space	Barren	Urban Open Space	Barren
Developed, Low Intensity	Urban Other	Barren	Urban Other	Barren
Developed, Medium Intensity	Urban Other	Barren	Urban Other	Barren
Developed, High Intensity	Urban Other	Barren	Urban Other	Barren

Within the ROW, and for the indefinite period following construction—during ongoing operations—we assume pre-MVP forestland will become shrub/scrub, and cropland will become pasture/forage. We

recognize some pre-MVP cropland may be used for crops after construction has been completed, but as expressed in comments to FERC and elsewhere, and as we discovered through personal interviews with agricultural producers in the region, it seems likely that the ability to manage acreage for row crops will be greatly curtailed, if not eliminated entirely by the physical limits imposed by the MVP and by restrictions in easements to be held by MVP LLC. These include limits on the weight of equipment that could cross the corridor at any given point and difficulty using best soil conservation practices, such as tilling along a contour, which may be perpendicular to the pipeline corridor. (This would require extra time and fuel use that could render some fields too expensive to till, plant, or harvest.)

Reclassifying cropland as pasture/forage (which is a generally less productive ecosystem service) recognizes these effects while also recognizing some sort of future agricultural production in the ROW (grazing and possibly haying) could be possible.

An additional effect not captured in our methods is long-standing harm to agricultural productivity due to soil compaction, soil temperature changes, and alteration of drainage patterns due to pipeline construction. As agronomist Richard Fitzgerald (2015) concludes, "it is my professional opinion that the productivity for row crops and alfalfa will never be regenerated to its existing present 'healthy' and productive condition [after installation of the pipeline]." Thus, the true loss in food and other ecosystem service value from pasture/forage acreage would be larger than our estimates reflect.

Permanent access roads and sites for main line valves are assumed, post construction, to remain in the "barren" land use and produce the corresponding level of ecosystem services.

Step 3: Multiply Acreage by Per-Acre Value to Obtain ESV

After obtaining acreage by land use in the construction corridor and the ROW, we are ready to multiply those acres times per-acre-per-year ecosystem service productivity (in dollar terms) to obtain total ecosystem service value in each area and for with- and without-pipeline scenarios. Per-acre ecosystem service values are obtained primarily from a database of more than 1,300 estimates compiled as part of a global study known as "The Economics of Ecosystems and Biodiversity" or "the TEEB" (Van der Ploeg et al., 2010). The TEEB database allows the user to select the most relevant per-unit-area values, based on the land use/land cover profile of the study region, comparison of general economic conditions in the source and study areas, and the general "fit" or appropriateness of the source study for use in the study area at hand. After eliminating estimates from lower-income countries and estimates from the U.S. that came from circumstances vastly different from Virginia and West Virginia, we identified 91 per-acre estimates in the TEEB that adequately provide approximations of ecosystem service value in our study region. The construction of the study region of the study region of ecosystem service value in our study region.

¹⁴ Led by former Deutsche Bank economist, Pavan Sukhdev, the TEEB is designed to "[make] nature's values visible" in order to "mainstream the values of biodiversity and ecosystem services into decision-making at all levels" ("TEEB - The Initiative," n.d.). It is also an excellent example of the application of the benefit transfer method.

¹⁵ Among those U.S. studies included in the TEEB database that we deemed inappropriate for use here were a study from Cambridge Massachusetts that reported extraordinarily high values for aesthetic and recreational value and the lead author's own research on the Tongass and Chugach National Forests in Alaska. The latter was excluded due to the vast differences in land use, land tenure, climate, and other factors between the source area and the current study region.

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After selecting the best candidate studies and estimates in the TEEB database, we still had some key land use/ecosystem services values (such as food from cropland) without value estimates. To fill some of the most critical gaps, we turned to other studies that examined ecosystem service value in this general region (Phillips, 2015a; Phillips & McGee, 2016b) and to specific data on cropland and pasture/hayland value from Virginia Cooperative Extension and the National Agricultural Statistics Service (Lex & Groover, 2015; USDA National Agricultural Statistics Service, 2016).

For several land cover-ecosystem service combinations, either multiple source studies were available or the authors of those studies reported a range of dollar-per-acre ecosystem service values. We are therefore able to report both a low and a high estimate based on the bottom and top end of the range of available estimates.

In the end, we have 165 separate estimates from 61 unique source studies covering 67 combinations of land uses and ecosystem services. (See Appendix A to this report for a full list of the values and sources that yielded these estimates.) This is still a fairly sparse coverage, given there are 140 possible combinations of the 10 land uses and 14 services. Therefore, we know our aggregate estimates will be lower than they would be if dollar-per-acre values for all 14 services were available to transfer to each of the 10 land use categories in the study region. It is possible to live with that known underestimation, or it is possible to assign per-acre values from a study of one land-use-and-service combination to other combinations. Doing so would introduce unknown over- or perhaps under-estimation of aggregate values. We prefer to take the first course, knowing our estimates are low/conservative and urge readers to bear this in mind when interpreting this information for use in weighing the costs of the proposed MVP.

After calculating acreage and per-acre ecosystem service values, we now calculate ecosystem service value per year for each of the four area/scenario combinations. To repeat, these annual values are:

- Baseline (no pipeline) ecosystem service value in the proposed construction corridor
- Ecosystem service value in the construction corridor during construction
- Baseline (no pipeline) ecosystem service value in the proposed right-of-way
- Ecosystem service value in the right-of-way during the (indefinite) period of ongoing operations¹⁶

¹⁶ Note that while the ROW and construction corridors overlap in space, they do not overlap in time, at least not from an ecosystem services production standpoint. During construction, the land cover that would eventually characterize the ROW will not exist in the construction corridor. Thus, there is no double counting of ecosystem service values or of costs from their diminution as a result of either construction or ongoing operations.

Value calculations are accomplished according to this formula

ESV per year =
$$\sum_{i,j} [(Acres_i) \times (\$/acre/year)_{i,j}]$$

Where:

Acres_j is the number of acres in land use (j)

 $(\$/acre/year)_{i,j}$ is the dollar value of each ecosystem service (i) provided from each land

use (j) each year. These values are drawn from the TEEB database and

other sources listed in Appendix A.

Step 4: Subtract Baseline "without MVP" ESV from ESV in "with MVP" Scenario

With the steps above complete, we now estimate the cost in ecosystem service value of moving from the baseline (no pipeline) or status quo to a scenario in which the MVP is built and operating.

The cost of construction is the ESV from the construction corridor during construction, minus baseline ESV for the construction corridor, multiplied by two. The multiplication by two is due to the conservative assumption that revegetation and restoration to a land use that is functionally different from barren land will take at least two years.

The ecosystem service cost of ongoing operations is ESV from the ROW in the "with MVP" scenario minus the baseline ESV for the ROW. This will be an annual cost borne every year in perpetuity.

Ecosystem Service Value Estimates

In the baseline or "no pipeline" scenario, the construction corridor and land slated for temporary roads and workspaces produces between \$11.4 and \$41.1 million per year in ecosystem service value. The largest contributors to this total (at the high end) are aesthetic value, water supply, and protection from extreme events. Under a "with MVP" scenario, and not surprisingly given the temporary conversion to bare/barren land, these figures drop to near zero, or between \$451 and \$3,552 per year for each of the two years. Taking the difference as described above, estimated per-year ecosystem service cost of the MVP's construction would be between \$11.4 and \$41.1 million, or between \$22.8 and \$82.2 million over two years in the eight-county study region (Table 5).

The ecosystem service costs for the ROW are predictably smaller on a per-year basis, but because they will persist indefinitely, the cumulative effect will be much higher. Under the "with MVP" scenario, using minimum values, the annual ecosystem service value from the ROW falls from \$4.2 million to about \$160,000 for an annual loss of over \$4.1 million. At the high end of the range, the ecosystem service value of the ROW would fall from \$15.3 million to about \$436,000 for an annual loss of \$14.8 million in the study region (Table 6).

TABLE 5: Ecosystem Service Value Lost to the Construction Corridor and Temporary Roads and Workspaces in Each of Two Years, Relative to Baseline, by Ecosystem Service (2015\$)

	Study Region			
Ecosystem Service	Baseline (low)	Loss (low)	Baseline (high)	Loss (high)
Aesthetic Value	8,046,503	(8,046,503)	32,491,871	(32,491,871)
Air Quality	666,647	(666,647)	680,270	(680,270)
Biological Control	12,524	(12,524)	30,044	(30,044)
Climate Regulation	209,199	(209,199)	228,236	(228,236)
Erosion Control	15,104	(15,104)	146,466	(146,466)
Protection from Extreme Events	1,447,945	(1,447,945)	1,482,118	(1,482,118)
Food Production	10,929	(10,929)	10,929	(10,929)
Pollination	369,769	(369,769)	433,706	(433,706)
Raw Materials	43,763	(43,763)	297,240	(297,240)
Recreation	64,090	(63,722)	967,718	(965,459)
Soil Formation	12,837	(12,837)	41,061	(41,061)
Waste Treatment	22,692	(22,666)	527,395	(527,369)
Water Supply	84,501	(84,444)	2,306,613	(2,305,346)
Water Flows	417,057	(417,057)	1,444,340	(1,444,340)
Total	11,423,559	(11,423,108)	41,088,007	(41,084,455)

Most of this loss is due to the conversion of forestland to shrub/scrub. Shrub/scrub naturally increases its share of overall ecosystem service value in the "with pipeline" scenario. Those gains are dwarfed, however, by the loss of much more productive forests. Similarly, the ecosystem-service value of cropland falls due to its assumed transition to pasture/forage. While there is some gain in the pasture/forage category, there is a net loss of ecosystem service value from the two agricultural land uses of between \$1,000 and \$28,000 per year.¹⁷

TABLE 6: Ecosystem Service Value Lost Each Year Post Construction in Right-Of-Way, Relative to Baseline, by Ecosystem Service (2015\$)

		Study Region			
Ecosystem Service	Baseline (low)	Loss (low)	Baseline (high)	Loss (high)	
Aesthetic Value	2,985,838	(2,945,731)	12,089,964	(12,040,073)	
Air Quality	248,102	(222,539)	251,931	(222,539)	
Biological Control	4,062	(1,673)	10,554	(8,166)	
Climate Regulation	68,141	(32,887)	75,238	(39,900)	
Erosion Control	4,926	12,931	51,847	(26,014)	

¹⁷ Note that due to differences in the range of dollars-per-acre estimates available for the various combinations of land use and ecosystem service, there are some instances where an apparent gain at the low end turns into a loss at the high end. For example, and based on the estimates available from the literature, the minimum value for erosion control from shrub/scrub acres is higher than the minimum for forests. Because we assume that forests return to shrub/scrub after the pipeline is in operation, this translates into a net increase in erosion regulation. At the high end, however, available estimates show a higher erosion control value for forests than for shrub/scrub. Thus, the high estimate shows a net loss of erosion control benefits. It is important, therefore, to keep in mind that these estimates are sensitive to the availability of underlying per-acre estimates.

Protection from Extreme Events	536,977	(529,386)	547,721	(529,386)
Food Production	3,308	(1,043)	3,308	(1,043)
Pollination	137,114	(133,628)	160,576	(153,309)
Raw Materials	16,306	(16,278)	110,739	(110,711)
Recreation	18,729	1,738	355,391	(332,073)
Soil Formation	4,641	(4,083)	15,136	(14,579)
Waste Treatment	8,197	(7,182)	194,147	37,326
Water Supply	31,478	(31,450)	859,334	(857,620)
Water Flows	155,301	(152,619)	536,635	(529,356)
Total	4,223,118	(4,063,831)	15,262,520	(14,827,442)

Finally, the establishment of permanent access roads and other surface installations will entail the conversion of land from various uses to what, from an ecosystem services perspective, will function as barren land. These areas amount to a total of only 76 acres across the study region, so the effect on ecosystem service values are correspondingly small, at least when compared to the impact of the construction zone and ROW. As with the ROW, however, these effects would occur year after year for as long as the MVP exists. The annual loss of ecosystem service value from these areas under a "with MVP" scenario would range from \$350,000 to \$1.2 million.

It bears repeating the benefit transfer method applied here is useful for producing first-approximation estimates of ecosystem service impacts. For several reasons, we believe this approximation of the effect of the MVP's construction and operation on ecosystem service values is too low rather than too high. These reasons include:

 The estimates include only the loss of value that would otherwise emanate from the ROW, construction corridors, access roads, temporary workspaces, and other surface installations themselves.

The estimates do not account for the extent to which the construction and long-term presence of the MVP could damage the ecosystem service productivity of adjacent land. During construction, the construction corridor itself could be a source of air and water pollution that may compromise the ability of surrounding or downstream areas to deliver ecosystem services of their own. For example, if sediment from the construction zone that reaches surface waters, the sediment will cause those streams and rivers to lose some of their ability to provide clean water, food (fish), recreation, and other valuable services. This reduced productivity may persist well after construction is complete.¹⁸

• Over the long term, the right-of-way would serve as a pathway by which invasive species or wildfire could more quickly penetrate areas of interior forest habitat, thereby reducing the natural

¹⁸ This is not a small risk. As noted by the Dominion Pipeline Monitoring Coalition "pipeline construction over steep Appalachian mountains creates significant runoff and slope-failure problems" (Webb, 2015b). In one example, multiple problems during and after construction of a relatively small pipeline on Peters Mountain in Giles County caused extensive erosion and damage to waterways (Webb, 2015a). The coalition points out that "the potential for water resource problems will be greatly multiplied for the proposed larger projects [like the MVP], both in terms of severity and geographic extent."

- productivity of those areas and imposing direct costs on communities and landowners in the form of fire suppression costs, lost property, and the costs of controlling invasive species.
- Finally, these estimates reflect only those changes in natural benefits that occur due to changes in conditions on the surface of the land. Particularly because the proposed pipeline would traverse areas of karst topography there is well-founded concern that subsurface hydrology could be affected during construction and throughout the lifetime of the pipeline (Jones, 2015; Pyles, 2015). Blasting and other activities during construction could alter existing underground waterways and disrupt water supply. There is also a risk that sediment and other contaminants could reach groundwater supplies if sinkholes form near the pipeline during construction or afterwards.

EFFECTS ON PROPERTY VALUE

Land Price Effects

To say the impacts and potential impacts of the MVP on private property value are important to people along its proposed route would be an extreme understatement. The Pipeline Information Network (2015) reviewed all MVP comments submitted to FERC in the first three months of 2015. Some 60% of these comment letters mentioned property value or property rights concerns. Landowners and Realtors along the proposed route of the Mountain Valley Pipeline report have abandoned building plans, seen lower than expected appraisals,

"I never met a client who would choose, for a family home, a property with a 42" pipeline full of explosive gas over a similar property without such an environmental and personal-safety hazard."

Patricia Tracy, Realtor
 Blacksburg, Virginia

and have had buyers walk away from properties potentially affected by the MVP (Adams, 2016). At least one ROW landowner has been told by two insurance agencies that rates would likely increase for properties like hers if, indeed, coverage remains available at all (Roston, 2015).

While it is impossible to know precisely how large an effect the specter of the MVP has already had on land prices, there is strong evidence from other regions that the effect would be negative. In a systematic review, Kielisch (2015) presents evidence from surveys of Realtors, home buyers, and appraisers demonstrating natural gas pipelines negatively affect property values for a number of reasons. Among his key findings relevant to the MVP:

- 68% of Realtors believe the presence of a pipeline would decrease residential property value.
- Of these Realtors, 56% believe the decrease in value would be between 5% and 10%. (Kielisch does not report the magnitude of the price decrease expected by the other 44%.)
- 70% of Realtors believe a pipeline would cause an increase in the time it takes to sell a home. This is not merely an inconvenience, but a true economic and financial cost to the seller.
- More than three quarters of the Realtors view pipelines as a safety risk.

• In a survey of buyers presented with the prospect of buying an otherwise desirable home with a 36-inch diameter gas transmission line on the property, 62.2% stated that they would no longer buy the property at any price. Of the remainder, half (18.9%) stated that they would still buy the property, but only at a price 21%, on average, below what would otherwise be the market price. The other 18.9% said the pipeline would have no effect on the price they would offer.

Not incidentally, the survey participants were informed that the risks of "accidental explosions, terrorist threats, tampering, and the inability to detect leaks" were "extremely rare" (2015, p. 7).

Considering only those buyers who are still willing to purchase the property, the expected loss in market value would be 10.5%. This loss in value provides the mid-level impact in our estimates. A much greater loss (and higher estimates) would occur if one were to consider the fact that 62% of buyers are effectively reducing their offer prices by 100%, making the average reduction in offer price for <u>all</u> potential buyers 66.2%. In our estimates, however, we have used the smaller effect (-10.5%) based on the assumption that sellers will eventually find one of the buyers still willing to buy the pipeline-easement-encumbered property.

Based on five "impact studies" in which appraisals of smaller properties with and without pipelines were compared, "the average impact [on value] due to the presence of a gas transmission pipeline is -11.6%" (Kielisch, 2015, p. 11). The average rises to a range of -12% to -14% if larger parcels are considered, possibly due to the loss of subdivision capability.

These findings are consistent with economic theory about the behavior of generally risk-averse people. While would-be landowners who are informed about pipeline risks and nevertheless decide to buy property near the proposed MVP corridor could be said to be "coming to the nuisance," one would expect them to offer less for the pipeline-impacted property than they would offer for a property with no known risks.

Kielisch's findings demonstrate that properties on natural gas pipeline rights-of-way suffer a loss in property value. Boxall, Chan, and McMillan (2005), meanwhile, show that pipelines also decrease the value of properties lying at greater distances. In their study of property values near oil and gas wells, pipelines, and related infrastructure, the authors found that properties within the "emergency plan response zone" of sour gas²¹ wells and natural gas pipelines faced an average loss in value of 3.8%, other things being equal.

The risks posed by the MVP would be different – it would not be carrying sour gas, for example—but there are similarities between the MVP scenario and the situation in the study that makes their finding particularly relevant. Namely, the emergency plan response zones (EPZs) are defined by the health and safety risks posed by the gas operations and infrastructure. Also, in contrast to MVP-cited studies

¹⁹ Half of the buyers would offer 21% less, and the other half would offer 0% less; therefore the expected loss is 0.5(-21%) + 0.5(0%) = -10.5%.

²⁰ This is the expected value calculated as 0.622*(-100%)+0.189*(-21%)+0.189*(0%).

²¹ "Sour" gas contains high concentrations of hydrogen sulfide and poses an acute risk to human health.

showing no price effects (see "Claims that pipelines have no effect on property value may be invalid," below), the Boxall study examines prices of properties for which landowners must inform prospective buyers when one or more EPZs intersect the property.

The MVP has both a high consequence area (HCA) and an evacuation zone radiating from both sides of the pipeline defined by health and safety risks. Whether disclosed or not by sellers, prospective buyers are likely to become informed regarding location of the property relative to the MVP's HCA and evacuation zones or, at a minimum, regarding the presence of the MVP in the study region.

In addition to the emerging body of evidence that there is a negative relationship between natural gas infrastructure and property value, there have been many analyses demonstrating the opposite analog. Namely, it is well-established that amenities such as scenic vistas, access to recreational resources, proximity to protected areas, cleaner water, and others convey positive value to real property.²² There are also studies demonstrating a negative impact on land value of various other types of nuisance that impose noise, light, air, and water pollution, life safety risks, and lesser human health risks on nearby residents (Bixuan Sun, 2013; Bolton & Sick, 1999; Boxall et al., 2005). The bottom line is that people derive greater value from, and are willing to pay more for, properties that are closer to positive amenities and farther from negative influences, including health and safety risks.

Claims that pipelines have no effect on property value may be invalid.

Both FERC and MVP LLC have cited several studies purporting to show that natural gas pipelines (and in one case a liquid petroleum pipeline) have at most an ambiguous and non-permanent effect on property values. In its final EIS regarding the Constitution Pipeline, for example, FERC cited two articles concluding, in brief, that effects on property value from the presence of a pipeline can be either positive or negative, and that decreases in values due to a pipeline explosion fade over time (Diskin, Friedman, Peppas, & Peppas, 2011; Hansen, Benson, & Hagen, 2006). In its filing, MVP LLC cites additional studies drawing similar conclusions based on comparison of market and/or assessed prices paid for properties "on" or "near" a pipeline versus those farther away (Allen, Williford & Seale Inc., 2001; Fruits, 2008; Mountain Valley Pipeline LLC, 2015b; Palmer, 2008).

While the studies differ in methods, they are similar in that each fails to take into account two factors potentially voiding their conclusions entirely. First, the studies do not consider that the property value data used do not represent prices arising from transactions in which all buyers have full information about the subject properties. Second, for the most part, the definition of nearness to the pipelines may be inappropriate or inadequate for discerning actual effects on property value of that nearness.

Economic theory holds that for an observed market price to be considered an accurate gauge of the value of a good, all parties to the transaction must have full information about the good. If, on the other hand, buyers lack important information about a good, in this case whether a property is near a potential hazard, they cannot bring their health and safety concerns—their risk aversion—to bear on

²² Phillips (2004) is one such study that includes an extensive review of the literature on the topic.

their decision about how much to offer for the property. As a result, buyers' offer prices will be higher than they would be if they had full information.

As Albright (2011) notes in response to the article by Disken, Friedman, Peppas, & Peppas (2011):

The use of the paired-sales analysis makes the assumption of a knowing purchaser, but I believe this analysis is not meaningful unless it can be determined that the purchaser had true, accurate and appropriate information concerning the nature and impact of the gas pipeline on, near or across their property. ... I believe that the authors' failure to confirm that the purchasers in any of the paired sales transactions had full and complete knowledge of the details concerning the gas transmission line totally undercut the authors' work product and the conclusions set forth in the article. (p.5)

Of the remaining studies, only Palmer (2008) gives any indication that any buyers were aware of the presence of a pipeline on or near the subject properties. For Palmer's conclusion that the pipeline has no effect on property value to be valid, however, it must be true that **all** buyers have full information, and this was not the case.

The study by Hansen, Benson, and Hagen (2006) actually reinforces the conclusion that when buyers know about a nearby pipeline, market prices drop. The authors found that property values fell after a deadly 1999 liquid petroleum pipeline explosion in Bellingham, Washington. They also found that the negative effect on prices diminished over time. This makes perfect sense if, as is likely, information about the explosion dissipated once the explosion and its aftermath left the evening news and the physical damage from the explosion had been repaired.

We do not think it is appropriate to conclude from this study (as FERC did in the case of the Constitution Pipeline) that natural gas transmission pipelines would have no effect on land prices in today's market. In contrast to Bellingham homebuyers in the months and years after the 1999 explosion, today's homebuyers can query Zillow to see the history of land prices near the pipeline and explore online maps to see what locally undesirable land uses exist near homes they might consider buying. They also have YouTube and repeated opportunities to find and view news reports, citizens' videos, and other media describing and depicting such explosions and their aftermath. Whether the pre-explosion prices reflected the presence of the pipeline or not, it is hard to imagine that a more recent event and the evident dangers of living near a fossil fuel pipeline would be forgotten so quickly by today's would-be homebuyers.

Online based tools have changed the ways people shop for homes. We are now in a real world much closer to the competitive economic model that assumes all buyers have full information about the homes they might purchase. Anyone with an eye toward buying property near the proposed MVP corridor would quickly learn that the property is in fact near the corridor, that there is a danger the property could be adversely affected by the still-pending project approval, and that fossil fuel pipelines and related infrastructure have an alarming history of negative health and environmental effects. Accordingly, the price buyers would offer for a home near the MVP will be lower than the price offered for another farther away or in another community or region entirely.

The second problem with the studies is that while they purport to compare the price of properties near a pipeline to properties not near a pipeline, many or in some cases all of the properties counted as "not near" the pipelines are, in fact, near enough to the subject pipelines that health and safety concerns could influence prices. In both studies written by the Interstate Natural Gas Association of America (INGAA) the authors compare prices for properties directly on a pipeline right-of-way to prices of properties off the right-of-way. However, in almost all cases the geographic scope of the analysis was small enough that most or all of the properties not on the right-of-way are still within the pipelines' respective evacuation zones (Allen, Williford & Seale Inc., 2001; Integra Realty Resources, 2016).²³

The 2016 INGAA study suffers from the same problems, including the comparison of properties "on" and "off" the six pipelines analyzed when a majority of the "off" properties are within the pipelines' evacuation zones. In eight of the case studies—those for which a specific distance from pipeline was reported—an average of 72.5% of the "off" properties were actually within the evacuation zone. (We estimated the evacuation zone based on available information about the pipelines' diameter and operating pressure.) For the other two pipelines, the study reported a simple "yes" or "no" to indicate whether the property abutted the pipeline in question. For these cases, we assume the author's methods, while flawed, are at least consistent from one case study to the next meaning it is likely at least 50% or more of the comparison properties (the "off" properties) are in fact within the evacuation zone.

To adequately compare the price of properties with and without a particular feature, there needs to be certainty that properties either have or do not have the feature. It is a case where one actually does need to compare apples to oranges. However, because there is no variation in the feature of interest (i.e., the majority of properties are within the evacuation zone), the study is only looking at and comparing "apples." In this case, the feature of interest is the presence of a nearby risk to health and safety. With no variation in that feature, one would not expect a systematic variation in the price of the properties. By comparing apples to apples when it should be comparing apples to oranges, the INGAA study reaches the forgone and not very interesting conclusion that properties that are similar in size, condition, and other features including their location within the evacuation zone of a natural gas pipeline have similar prices.

To varying degrees, the other studies cited by FERC and in MVP LLC's filing suffer from the same problem. Fruits (2008), who analyzes properties within one mile of a pipeline that has a 0.8-mile-wide-evacuation zone (0.4 miles on either side), offers the best chance that a sizable portion of subject properties are in fact "not near" the pipeline from a health and safety standpoint. He finds that distance from the pipeline does not exert a statistically significant influence on the property values, but he does not examine the question of whether properties within the evacuation zone differ in price from comparable properties outside that zone. A slightly different version of Fruits' model, in other words, could possibly detect such a threshold effect. Such an effect would show up, of course, only if the

²³ This is based on a best estimate of the location of the pipelines derived from descriptions of the pipelines location provided in the study (only sometimes shown on the neighborhood maps) and an approximation of the evacuation zone based on pipeline diameter and operating pressure (Pipeline Association for Public Awareness, 2007).

buyers of the properties included in the study had been aware of their new property's proximity to the pipeline.

In short, one cannot conclude from these flawed studies' failure to identify a negative effect of pipelines on property value that no such effect exists. To evaluate the effects of the proposed MVP on property value, FERC and others must look to studies (including those summarized in the previous section) in which buyers' willingness to pay is fully informed about the presence of nearby pipelines and in which the properties bought are truly different in terms of their exposure to pipeline-related risks.

Visual Effects and Viewshed Analysis

Information about how the visual effects of natural gas transmission pipelines are reflected in property value is scarcer than information related to health and safety effects. On one hand, we know better views increase property value. Conversely, utility corridors from which power lines can be seen decrease property values (by 6.3% in one study) (Bolton & Sick, 1999). This suggests that a pipeline corridor reduces property value either by impairing a good view or, if like power lines, by simply being unattractive. It is reasonable to conclude that the proposed MVP would have effects on property value that are mediated through visual effects, but the literature to date does not offer clear guidance on how large or strong the effects may be. We therefore have not included separate estimates of the impact of the MVP on property value in the viewshed. Moreover, we do not wish to double-count a portion of the impact of the MVP on "Aesthetics," which is already included among the ecosystem service value effects.

We do want to know, however, how many properties might suffer a portion of that lost aesthetic value. To keep the estimate conservative, we only count properties with a higher-than-average likelihood the MVP corridor could be seen from them. To determine this for each parcel, a GIS-based visibility analysis provides an estimate of how many points along the pipeline could potentially be seen from each 30m-by-30m spot in the study region. To keep the computing needs manageable, we analyzed a sample of points placed at 100m intervals along the proposed MVP route.

Because weather, smog, and other conditions limit the distance at which one can see anything in the mountains and valleys of Virginia and West Virginia, we restricted the scope of analysis for any given point on the pipeline to spots in the study region that lie within a 25-mile radius. We analyzed a section of the MVP beginning 25 miles north of the western boundary of Greenbrier County, West Virginia that extended to a point 25 miles east of the eastern boundary of Franklin County, Virginia.

By tallying the number of points on the pipeline corridor that could be seen from each spot in the study region and then connecting those spots to parcel boundaries, we obtain an estimate of how much of the pipeline could be seen from some spot within a given parcel. In Figure 6, yellow spots on the maps are points where between 1 and 10 points on the pipeline are visible, whereas orange and red spots have a view of up to as many as 251 points. Since each point represents 100 meters of pipeline, there are places in the study region where 25.1 km, or 15.6 miles, of pipeline corridor could be visible.

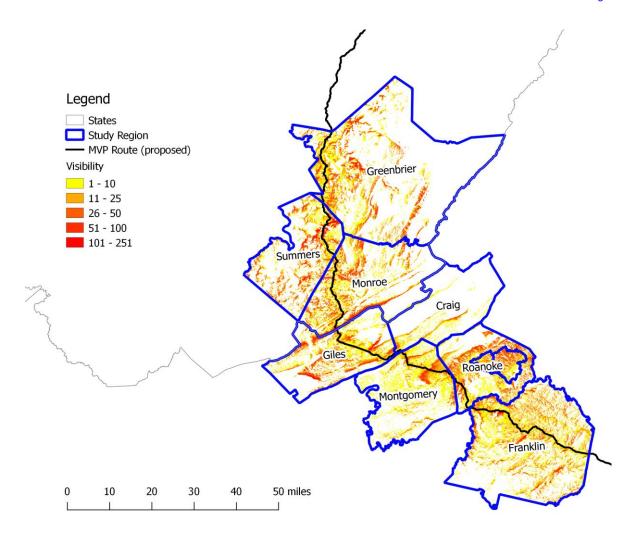


FIGURE 7: Visibility of the Proposed Mountain Valley Pipeline

The color of each point on the map indicates the number of waypoints, spaced 100m apart along the MVP route and within 25 miles, that could be seen from each point. Note that the analysis is based on elevation only and does not take into account the extent to which buildings or trees may mask views of the pipeline corridor.

Sources: MVP route digitized from online maps and MVP LLC filings (http://mountainvalleypipeline.info/maps/); Counties from USGS (http://nationalmap.gov); Visibility analysis thanks to Bryan Behan and Stockton Maxwell of Radford University.

Taking into account those spots on nearly every parcel from which the MVP corridor is <u>not</u> visible, the average of the maximum number of points visible from a parcel is 10. This serves as our threshold for identifying parcels from which the pipeline would be "visible." Parcels containing no locations (again each spot is a 30m-by-30m square) from which more than 10 pipeline points are visible are considered to have no view of the pipeline. By this rule, and out of 253,880 parcels in the study region, 78,553 parcels, or just under one-third, would have a potential view of the pipeline.²⁴ The total value of these properties is currently \$16.8 billion.

This a <u>potential</u> view of the pipeline because other visual obstructions, such as trees or buildings, are not taken into account. In particular, smaller parcels in more densely developed areas could be at elevations relative to the pipeline which would make it possible to see the MVP corridor, but the house

²⁴ Because GIS parcel maps are unavailable for Craig and Monroe Counties, those counties are not included in these figures.

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next door may block that view. The restriction of our analysis to those parcels that have comparatively many spots from which to potentially see the pipeline mitigates this limitation of our GIS analysis. The reason is simply that smaller urban lots have very few 30-meter-square spots to begin with. A parcel has to be at least 10 spots in size (2.2 acres), with the pipeline visible from every spot, to cross the 10-spot threshold.

Parcel Values

For five of the eight counties in the study region, GIS data on parcel boundaries and corresponding tabular data with parcel value was obtained from the jurisdictions' public records. For the remaining three counties, electronic data on parcel boundaries, parcel values, or both were unavailable. In those cases, we adopted variations on a second-best approach to ensure more complete coverage of land value effects.

- Summers County, WV parcel boundaries were available, but the corresponding parcel values
 were not. We therefore used median house value from the US Census Bureau's American
 Community Survey (ACS) (2014) as a proxy. After adjusting the ACS figures for inflation, we
 attached those values to each parcel, according to which block group the parcel occupies.²⁵
- Monroe County, WV parcel boundaries are viewable via the County's online map service, which
 allowed us to develop a list of parcels crossed by the ROW and those that overlap the
 evacuation zone. Similar to Summers County, we used median house value from ACS as a proxy
 for parcel value.
- For Craig County, parcel maps and corresponding parcel values are not available. MVP's route
 map, however, does show the 10 parcels crossed by the (ROW) through the County's southwest
 corner. We assume that 10 more parcels would be within the evacuation zone. For parcel value,
 we use the same proxy from ACS.

Two other features of the parcel data required adjustments prior to performing any land value impact calculations. First, the Giles County data had instances in which two or more individual tracts in different parts of the County are listed on a single tax record with a single property value. The consequence is that the value of all of the land connected to such multi-tract tax records would be swept up with the value of just those tracts actually crossed by the proposed ROW, or in the evacuation zone. To avoid overstating impacts, we split the multi-tract parcels into separate tax records and assigned each tract its own value based on its size and the per-acre value of the original multi-tract parcel.

The second remaining issue deals with public land that is unlikely to be sold and therefore does not possess any market value. To ensure these properties would not inflate overall property value effects, we used the "Protected Areas Database" from the National Gap Analysis Program to identify fee-owned conservation properties, such as portions of the Jefferson National Forest and state, county, and

²⁵ Because many parcels overlap block group boundaries, each parcel is assigned to a block according to whether its centroid, or geometric center, lies within the block group.

municipal parks (Conservation Biology Institute, 2012). Once identified, we set the value of all such properties equal to zero.

With all of these adjustments made, there remains the comparatively straightforward matter of identifying parcels of six types for which one could expect some effect of the MVP on the value. In order of increasing distance from the pipeline itself, these are:

- Parcels crossed by the right-of-way
 (716 parcels, with total value (before MVP) of \$125.9 million)
- 2. Parcels crossed by the construction corridor (768 parcels, with total value (before MVP) of \$132.6 million)
- 3. Parcels at least partially within the high consequence area (HCA) (2,333 parcels, with total value (before MVP) of \$320.6 million)
- Parcels at least partially within the evacuation zone
 (8,221 parcels, with total value (before MVP) of \$972.6 million)
- 5. Parcels from which the pipeline would be visible (as defined in the previous section) (78,553, with total value (before MVP) of \$16.8 billion, not counting Monroe or Craig County)²⁶

Note there is overlap among these zones. All ROW parcels are within the construction, HCA, and evacuation zones, for example. To avoid double counting we apply only one land value effect to any given parcel. ROW parcels are assumed to suffer no further reduction in value due to their location within the evacuation zone.

We have not considered the construction corridor separately this analysis. Even though the additional 52 parcels and \$6.7 million in value (relative to parcels in the ROW) are not trivial, we do not have a basis for estimating a change in value that is separate from or in addition to the change due to the parcels' proximity to the ROW or their location within the evacuation zone.

[Upon learning of the proposed MVP route through my property,] I immediately put the land on the market, disclosing its [bisection] by the pipeline...I was told by a realtor that a sale was out of the question, as the land had lost its value for building.... As of now I have not received any offers except ones that make a purchase contingent on the pipeline not being built. Apparently buyers do care.

- Christian M. Reidys, Ph.D. Montgomery County Landowner Furthermore, we treat parcels in the HCA and in the evacuation zone the same way and apply a single land value change to all parcels in the evacuation zone. Arguably, there should be a larger effect on parcels in the HCA than those only in the evacuation zone. Living with the possibility of having to evacuate one's home at any time day or night could have a

smaller effect on property value than living with the possibility of not surviving a "high consequence" event and, therefore, not having the chance to evacuate at all. We do not have data or previous study

²⁶ Monroe and Craig County are excluded because we do not have the necessary GIS parcel boundary data.

results that allow us to draw such a distinction, so instead we apply the lower evacuation zone effect to all HCA and evacuation zone parcels.

To summarize, Table 7 repeats a portion of Table 1, but with the property value effects in place of check marks.

TABLE 7: Summary of Marginal Property Value Effects

Values / Effects	Right-of-Way (Low, Medium, & High Effects)	High Consequence Area	Evacuation Zone	Pipeline Viewshed
Land / Property Value	-4.2% ^a -10.5% ^b -13.0% ^c	-3.8%	∕6 ^d	Impact included with Ecosystem Services

Notes:

- a. Kielisch, Realtor survey in which 56% of respondents expected an effect of between -5% and -10% (0.56*-7.5% = -4.2%).
- b. Kielisch, buyer survey in which half of buyers still in the market would reduce their offer on a property with a pipeline by 21% (0.50*-0.21 = -10.5%).
- c. Kielisch, appraisal/impact studies showing an average loss of between -12% and -14% (-13% is the midpoint)
- d. Boxall, study in which overlap with an emergency planning zone drives, on average, a 3.8% reduction in price. We apply this reduction ONLY to those parcels in the evacuation zone that are not also in the ROW or within one half mile of the compressor station.

Estimated Land Value Effects

Following the procedures outlined in the previous section, our conservative estimate for costs of the proposed MVP would include between \$42.2 million and \$53.3 million in diminished property value. Some of the most intense effects will be felt by the owners of 716 parcels in the path of the right-of-way, who collectively would lose between \$5.3 million and \$16.4 million in property value. Some 8,221 additional parcels lie outside the ROW but are within or touching the evacuation zone. These parcels' owners would lose an estimated \$37.0 million (Table 8). A far greater number of parcels, 78,553, would experience a loss in value due to diminished quality of the view from their properties.

Based on median property tax rates in each county, these one-time reductions in property value would result in reductions in property tax revenue of between \$243,500 and \$308,400 per year (Table 9). To keep their budgets balanced in the face of this decline in revenue, the counties would need to increase tax rates, cut back on services, or both. The loss in revenue would be compounded by the likelihood that the need for local public services, such as road maintenance, water quality monitoring, law enforcement, and emergency preparedness/emergency response could increase. The MVP could drive up expenses while driving down the counties' most reliable revenue stream.²⁷

²⁷ We recognize that MVP anticipates making tax payments, but because those payments are tied to net income from the operation of the pipeline, they may fluctuate from year to year or disappear entirely if pipeline operations become unprofitable.

TABLE 8: Summary of Land Value Effects, by Zone and County

	E	Effects in Evacuation Zone		
Area	Realtor Survey (4.2%)	Buyer Survey (10.5%) ^a	Impact Studies (13.0%)	Boxall Study (3.8%)
Study Region	-5,288,289	-13,220,723	-16,368,514	-36,958,088
Virginia Portion	-4,484,041	-11,210,102	-13,879,174	-30,656,302
Craig	-60,223	-150,557	-186,404	-54,487
Franklin	-2,138,174	-5,345,434	-6,618,157	-14,855,120
Giles	-792,099	-1,980,248	-2,451,735	-4,174,604
Montgomery	-714,101	-1,785,252	-2,210,312	-7,009,533
Roanoke	-779,444	-1,948,611	-2,412,566	-4,562,557
West Virginia Portion	-804,248	-2,010,620	-2,489,339	-6,301,786
Greenbrier	-186,961	-467,402	-578,688	-1,438,278
Monroe	-382,228	-955,571	-1,183,088	-3,321,634
Summers	-235,059	-587,647	-727,563	-1,541,874

TABLE 8: Continued

	Total of ROW and Evacuation Zone Effects					
Area	Low	Medium	High			
Study Region	-42,246,377	-50,178,810	-53,326,601			
Virginia Portion	-35,140,343	-41,866,404	-44,535,476			
Craig	-114,710	-205,045	-240,892			
Franklin	-16,993,293	-20,200,554	-21,473,277			
Giles	-4,966,703	-6,154,852	-6,626,339			
Montgomery	-7,723,634	-8,794,785	-9,219,845			
Roanoke	-5,342,002	-6,511,168	-6,975,123			
West Virginia Portion	-7,106,034	-8,312,406	-8,791,125			
Greenbrier	-1,625,239	-1,905,680	-2,016,966			
Monroe	-3,703,862	-4,277,204	-4,504,721			
Summers	-1,776,933	-2,129,522	-2,269,438			

In addition to factors that make our estimates of the effects on property value conservative,²⁸ there is one other factor that makes the estimates of effects on property taxes lower than expected if the MVP is permitted. Some portion of properties in the ROW are currently undeveloped but still assessed at a

²⁸ These factors include using the lower expected price reduction from the buyer survey and applying the same price reduction to the entire evacuation zone (including the HCA).

value that assumes a single house site. Depending on where and how the ROW crosses these properties, it is likely that some will lose their potential usefulness for future residential or other development. In those cases, the assessed value (which by law reflects market value) will fall, and tax revenue generated by future development will never materialize.

TABLE 9: Effects on Local Property Tax Revenue

	Median Tax	Lost Property Tax Revenue		
	Rate			
Area	(% of Value) ^a	Low	Medium	High
Study Region		-243,476	-289,966	-308,414
Virginia Portion		-217,097	-259,111	-275,783
Craig	0.50%	-574	-1,025	-1,204
Franklin	0.47%	-79,868	-94,943	-100,924
Giles	0.72%	-35,760	-44,315	-47,710
Montgomery	0.67%	-51,748	-58,925	-61,773
Roanoke	0.92%	-49,146	-59,903	-64,171
West Virginia Portion		-26,379	-30,855	-32,631
Greenbrier	0.42%	-6,826	-8,004	-8,471
Monroe	0.36%	-13,334	-15,398	-16,217
Summers	0.35%	-6,219	-7,453	-7,943

a. Source: Property Taxes By State (Virginia Counties and Independent Cities) (propertytax101.org, 2015).

EFFECTS ON ECONOMIC DEVELOPMENT

Across the study region, county-level economic development plans recognize the importance of a high quality of life, a clean environment, and scenic and recreational amenities to the economic future of people and communities. Franklin County's Comprehensive Plan, for example, states that "the County wishes to maintain its rural character and scenic views..." (Franklin County Planning Commission, 2007). Greenbrier County's Comprehensive Plan notes the County's melding of old and new economy businesses (farming and high tech, for example) and recognizes that "a healthy environment is central to citizens' health, welfare, and quality of life" (Greenbrier County Planning Commission, 2014).

The MVP would undermine the progress toward these visions if the loss of scenic and recreational amenities, the perception and the reality of physical danger, and environmental and property damage were to discourage people from visiting, relocating to, or staying in the study region. Workers, businesses, and retirees who might otherwise choose to locate along the MVP's proposed route will instead pick locations retaining their rural character, productive and healthy landscapes, and promise for a higher quality of life.

This is already occurring in the region. With the possibility of the MVP looming, business plans have stalled and the real estate market has slowed. Study region residents are also concerned about the effect the MVP could have on the economy. Based on the Pipeline Information Network's review of comment letters submitted in the first three months of 2015, more than half mentioned the economy,

Forgone Economic Development: Sustainable Agriculture

Owners Patti and Constantine

Chlepas describe their 23-acre

Birdsong Farm as "pristine land in the heart of Monroe County." They use organic practices to produce natural raw honey and natural beeswax products. In part because pesticides are threatening honeybee operations worldwide, Birdsong Farm is an oasis from which the Chlepas can sell bees to and serve as mentors for apiarists in other places that have been hit hard. With the proposed MVP right-of-way adjacent to their property—and the likelihood that the ROW would be maintained using chemical defoliants that could harm bees—the owners are concerned that their core business would be wiped out. The Chlepas have put on hold their planned investment in a pick-your-own strawberry operation and a new line of business selling locally-grown fresh strawberries, strawberry plugs, and value-added products to sell in an on-site store. Birdsong Farm was planning to hire employees to help run their local operation. However, because of the MVP, they cancelled their grant to build a high tunnel greenhouse, and estimate the long-term loss in revenue to the County may run as high as half a million dollars.

with property value, tourism, recreation, and agriculture looming large in citizens' concerns (Pipeline Information Network, 2015).

These fears are consistent with research results from this region and around the country demonstrating that quality of life is often of primary importance when people choose places to visit, live, or do business. As Niemi and Whitelaw state, "as in the rest of the Nation, natural-resource amenities exert an influence on the location, structure, and rate of economic growth in the southern Appalachians. This influence occurs through the so-called people-first-then-jobs mechanism, in which households move to (or stay in) an area because they want to live there, thereby triggering the development of businesses seeking to take advantage of the households' labor supply and consumptive demand" (1999, p. 54). They note that decisions affecting the supply of amenities "have ripple effects throughout local and regional economies" (p. 54).

Along similar lines, Johnson and Rasker (1995) found that quality of life is important to business owners deciding where to locate a new facility or enterprise and whether to stay in a location already chosen. This is not surprising. Business owners value safety, scenery, recreational opportunities, and quality of life factors as much as residents, vacationers, and retirees.

It is difficult to predict just how large an effect the MVP would have on decisions about visiting, locating to, or staying in the study region. Even so, based on information provided by business owners to FERC and as part of this research, we can consider reasonable scenarios for how the MVP might affect key portions of the region's overall economy.

The study region's residents believe the MVP will harm the travel and tourism industry. In the words of the owner of one recreation and tourism business in Summers County, West Virginia, the MVP would "completely destroy the use, purpose, business operation, well, commercial septic system, two rental houses, and public campground on [the] property," with one-time losses valued at \$800,000, not to mention the owners loss of livelihood and employment (Berkley, 2015). While more systematic research could provide refined estimates of the impact of natural gas transmission pipelines on recreation and tourism spending, one plausible scenario is that the impact is at

least as high as the minimum of these business owners' reported expectations. If the MVP were to cause a 10% drop in recreation and tourism spending from the 2014 baseline, the MVP could mean \$96.8 million less in travel expenditures each year. Those missing revenues would otherwise support roughly \$24.3 million in payroll, \$2.6 million in local tax revenue,

Recognizing that a healthy environment is central to citizens' health, welfare, and quality of life, Greenbrier County strongly supports the wise stewardship of our natural environment, including air and water resources, agricultural and forest resources, and geologic resources, with special emphasis on the protection of environmentally sensitive areas and features (springs, sinkholes, caves, other karst features, floodplains, and wetlands) which contribute to overall environmental health and citizens' quality of life.

-Greenbrier County Comprehensive Plan

\$4.8 million in state tax revenue, and 1,073 jobs in the eight-county region's recreation and tourism industry each year.²⁹ In the short run, these changes multiply through the broader economy as recreation and tourism businesses buy less from local suppliers and fewer employees spend their paychecks in the local economy. As with the reduction in local property taxes, lost tax revenue from a reduction in visitation and visitor spending would squeeze local governments trying to meet existing public service needs as well as those additional demands created by the MVP.

Along similar lines, retirement income is an important economic engine that could be adversely affected by the MVP. In county-level statistics from the US Department of Commerce, retirement income shows up in investment income and as age-related transfer payments, including Social Security and Medicare payments. In the study region, investment income grew by 0.8% per year from 2000 through 2014, and age-related transfer payments grew by 5.8% per year. During roughly the same time period (through 2013), the number of residents age 65 and older grew by 15.1% (1.2% per year), and this age cohort now represents 15.5% of the total population.²

It is difficult to precisely quantify the effect of the MVP on retirement income, but given the expression of concern from residents about changes in quality of life, safety, and other factors influencing retirees' location decisions, it is important to consider that some change is likely. Here, we consider what just a 10% slowing of the rate of increase might entail. Such a scenario entails an annual decrease in investment income and age-related transfer payments of approximately \$15.6 million. That loss would ripple through the economy as the missing income is not spent on groceries, health care, and other services such as restaurant meals, home and auto repairs, etc.

The same phenomenon also applies to people starting new businesses or moving existing businesses to communities in the study region. This may be particularly true of sole proprietorships and other small businesses who are most able to choose where to locate. As noted, sole proprietors account for a large and growing share of jobs in the region. If proprietors' enthusiasm for starting businesses in the study

²⁹ Raw data on travel expenditures is from the Virginia Tourism Corporation (2015) and Dean Runyan Associates (2015). This reduction in economic activity would be in addition to the lost recreation benefits (the value to the visitors themselves over and above their expenditures on recreational activity) that are included with ecosystem service costs above.

region were dampened to the same degree as retirees' enthusiasm for moving there, the 10% reduction in the rate of growth would mean 722 fewer jobs and \$2.0 million less in personal income.

For "bottom line" reasons (e.g., cost of insurance) or due to owners' own personal concerns, businesses in addition to sole proprietorships might choose locations where the pipeline is not an issue. If so, further opportunities for local job and income growth will be missed.

These are simple scenarios and the actual magnitude of these impacts of the MVP will not be known unless and until the pipeline is built. Even so, and especially because the pipeline is promoted by supporters as bringing some jobs and other economic benefits to the region, it is important to consider the potential for loss.

A pipeline route through here will destroy our farm business. Our customers drive here for the scenery and tranquility as much as for the fresh blueberries. Construction of a pipeline this large does not fit into this picture. Our customers would recoil and take their business elsewhere.

-Shirley & Lewis Woodall Craig County, Virginia

CONCLUSIONS

The full costs of the proposed Mountain Valley Pipeline in the eight-county study area and beyond are wide-ranging. They include one-time costs like reductions in property value and lost ecosystem services during pipeline construction, which we estimate to be between \$65.1 and \$135.5 million. Plus there are ongoing costs like lost property tax revenue, diminished ecosystem service value, and dampened economic growth that would recur year after year for the life of the pipeline. Our estimates of the annual costs range from \$119.1 to \$130.8 million per year. Most of these costs would be borne by residents, businesses, and institutions in Craig, Franklin, Giles, Montgomery, Roanoke, Greenbrier, Monroe, and Summers Counties.

By contrast, the MVP's one local benefit is much smaller. It is an estimated average tax payment of \$6.1 million per year (for the five Virginia counties) and \$4.5 million per year (for the 3 West Virginia counties) through 2025 (Ditzel, Fisher, & Chakrabarti, 2015a, p. 15, 2015b, p. 13). Other MVP-promoted benefits, such as jobs from the MVP's construction and operation and those stemming from lower energy costs, would accrue primarily in other places (Ditzel et al., 2015a, 2015b).³⁰

The decision to approve or not approve the MVP does not hinge on a simple comparison of estimated benefits and estimated costs. The scope and magnitude of the costs outlined here, however, reflect an important component of the full extent of the MVP's likely environmental effects that must be considered when making the decision. Impacts on human well-being, including but not limited to those that can be expressed in dollars-and-cents, must be taken into account by the Federal Energy Regulatory Commission and others weighing the societal value of the Mountain Valley Pipeline.

If these considerations and FERC's overall review result in selection of the "no-action" alternative and the Mountain Valley Pipeline is never built, most of the costs outlined in this report will be avoided. It

³⁰ Due to issues with the methods and assumptions used in the MVP-sponsored studies, the benefit estimates they present may be inflated. See Phillips (2015b) for a review.

is *most*, but not *all* costs because there has already been the cost of delaying implementation of business plans, the cost of houses languishing on the market, and the cost to individuals of the stress, time, and energy diverted to concern about the pipeline rather than what would normally (and more productively) fill their lives.

Another possible scenario is that the FERC, considering the impacts of the MVP *as currently proposed* on ecosystem services, property values, and economic development, would conduct a thorough analysis of all possible alternatives. Those alternatives may include using existing gas transmission infrastructure (with or without capacity upgrades), routing new gas transmission lines along existing utility and transportation rights-of-way, and/or scaling down permitted new pipeline capacity to match regional gas transmission needs (as opposed to permitting pipelines on a company-by-company basis). In this case, estimates of these impacts should inform the choice of a preferred alternative that minimizes environmental damage and, thereby, minimizes the economic costs to individuals, businesses, and the public at large.

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APPENDIX A:

CANDIDATE PER-ACRE VALUES FOR LAND-USE AND ECOSYSTEM SERVICE COMBINATIONS

As explained under "Effects on Ecosystem Service Value," the benefit transfer method applies estimates of ecosystem service value from existing studies of "source areas" to the "study area," which in this case is the proposed MVP corridor. This application is done on a land-use-by-land-use basis. So, for example, values of various ecosystem services associated with forests in the source area are applied to forests in the study area. The table below lists all of the values from source area studies considered for our calculations.

Land Use	Ecosystem	Minimum	Maximum	Source Study
Land Ose	Service	\$/acre/year	\$/Acre/year	Source Study
	Aesthetic	35.01	89.23	(Bergstrom, Dillman, & Stoll, 1985)
	Biological Control	15.21	15.21	(Brenner Guillermo, 2007) *
	Biological Control	14.38	204.95	(Cleveland et al., 2006)
	Erosion	27.31	72.55	(Pimentel et al., 2003) *
	Food	33.25	33.25	(Lex & Groover, 2015)
	Pollination	10.14	10.14	(Brenner Guillermo, 2007) *
Cropland	Pollination	13.89	13.89	(Robinson, Nowogrodzki, & Morse, 1989)
	Pollination	47.43	1,987.97	(Winfree, Gross, & Kremen, 2011)
	Recreation	18.77	18.77	(Brenner Guillermo, 2007) *
	Recreation	2.16	5.02	(Knoche & Lupi, 2007)
	Soil Fertility	7.28	7.28	(Pimentel, 1998) *
	Soil Fertility	115.23	115.23	(Pimentel et al., 2003)
	Waste	132.26	132.26	(Perrot-Maiître & Davis, 2001) *
	Aesthetic	102.38	116.61	(Ready, Berger, & Blomquist, 1997)
	Biological Control	15.21	15.21	(Brenner Guillermo, 2007) *
	Climate	3.55	3.55	(Brenner Guillermo, 2007) *
	Erosion	17.48	17.48	(Barrow, 1991) *
	Erosion	68.28	68.28	(Sala & Paruelo, 1997) *
Grasslands	Food	15.50	15.50	(Lex & Groover, 2015) *
Grassiarius	Pollination	16.23	16.23	(Brenner Guillermo, 2007) *
	Soil Fertility	3.55	3.55	(Brenner Guillermo, 2007) *
	Waste	55.28	55.28	(Brenner Guillermo, 2007) *
	Waste	5.88	64.40	(Ministerie van Landbouw & Natuur en Voedselkwaliteit, 2006) *
	Water Flows	2.54	2.54	(Brenner Guillermo, 2007) *
	Aesthetic	102.38	116.61	(Ready et al., 1997)
	Biological Control	15.21	15.21	(Brenner Guillermo, 2007) *
	Climate	3.55	3.55	(Brenner Guillermo, 2007) *
Pasture	Erosion	17.48	17.48	(Barrow, 1991) *
	Erosion	68.28	68.28	(Sala & Paruelo, 1997) *
	Food	15.50	15.50	(Lex & Groover, 2015)
	Pollination	16.23	16.23	(Brenner Guillermo, 2007) *
	Soil Fertility	3.55	3.55	(Brenner Guillermo, 2007) *

Land Use	Ecosystem	Minimum	Maximum	Source Study
	Service	\$/acre/year	\$/Acre/year	
	Waste	55.28	55.28	(Brenner Guillermo, 2007) *
	Waste	5.88	64.40	(Ministerie van Landbouw & Natuur en
Pasture, cont'd				Voedselkwaliteit, 2006) *
	Water Flows	2.54	2.54	(Brenner Guillermo, 2007) *
	Air Quality	37.26	37.26	(Ministerie van Landbouw & Natuur en
				Voedselkwaliteit, 2006) *
	Climate	7.27	7.27	(Croitoru, 2007) *
	Erosion	22.75	22.75	(Ministerie van Landbouw & Natuur en
Shrub/Scrub				Voedselkwaliteit, 2006) *
Siliub/Scrub	Pollination	1.41	7.10	(Robert Costanza, Wilson, et al., 2006)
	Recreation	3.95	3.95	(Haener & Adamowicz, 2000)
	Waste	46.35	46.35	(Croitoru, 2007) *
	Waste	0.10	324.35	(Ministerie van Landbouw & Natuur en
				Voedselkwaliteit, 2006) *
	Aesthetic	4,439.71	18,141.99	(Nowak, Crane, Dwyer, & others, 2002)
	Air Quality	372.57	372.57	(Ministerie van Landbouw & Natuur en
				Voedselkwaliteit, 2006) *
	Biological Control	8.91	8.91	(Wilson, 2005) *
	Biological Control	2.54	2.54	(Brenner Guillermo, 2007) *
	Climate	67.45	67.45	(Brenner Guillermo, 2007) *
	Climate	56.89	56.89	(Robert Costanza, d'Arge, et al., 2006)
	Erosion	61.87	61.87	(Brenner Guillermo, 2007) *
	Erosion	3.09	36.09	(Zhou, Al-Kaisi, & Helmers, 2009)
	Extreme Events	797.66	797.66	(Weber, 2007)
	Food	0.13	0.13	(Wilson, 2005) *
	Pollination	202.87	202.87	(Brenner Guillermo, 2007) *
	Raw Materials	24.53	24.53	(Wilson, 2005) *
	Raw Materials	166.82	166.82	(Weber, 2007)
	Recreation	152.66	152.66	(Brenner Guillermo, 2007) *
Forest	Recreation	1.29	4.55	(Cruz & Benedicto, 2009) *
101630	Recreation	1.56	1.56	(Kniivila, Ovaskainen, & Saastamoinen, 2002) *
	Recreation	37.13	45.50	(Prince & Ahmed, 1989)
	Recreation	2.79	503.97	(Shafer, Carline, Guldin, & Cordell, 1993)
	Soil Fertility	6.09	6.09	(Brenner Guillermo, 2007) *
	Soil Fertility	19.97	19.97	(Weber, 2007)
	Waste	55.28	55.28	(Brenner Guillermo, 2007) *
	Waste	8.66	8.66	(Cruz & Benedicto, 2009) *
	Waste	265.79	266.89	(Lui, 2006)
	Water	204.39	204.39	(Brenner Guillermo, 2007) *
	Water	47.39	47.39	(Cruz & Benedicto, 2009) *
	Water	1,292.23	1,292.23	(Weber, 2007)
	Water Flows	230.01	230.01	(Mates, 2007)
	Water Flows	797.66	797.66	(Weber, 2007)

Land Use	Ecosystem Service	Minimum \$/acre/year	Maximum \$/Acre/year	Source Study
	Recreation	446.31	446.31	(Brenner Guillermo, 2007) *
	Recreation	155.36	914.10	(Cordell & Bergstrom, 1993)
Maken	Recreation	304.18	437.19	(Mullen & Menz, 1985)
Water	Recreation	148.68	148.68	(Postel & Carpenter, 1977)
	Waste	10.72	10.72	(Gibbons, 1986) *
	Water	512.74	512.74	(Brenner Guillermo, 2007) *
	Water	22.98	22.98	(Gibbons, 1986) *
	Aesthetic	38.46	38.46	(Amacher & Brazee, 1989) *
	Air Quality	75.50	98.02	(Jenkins, Murray, Kramer, & Faulkner, 2010)
	Climate	1.84	1.84	(Wilson, 2005) *
	Climate	157.73	157.73	(Brenner Guillermo, 2007) *
	Extreme Events	228.06	369.85	(Wilson, 2005) *
	Extreme Events	110.06	4,583.26	(Brenner Guillermo, 2007) *
	Extreme Events	304.18	304.18	(Robert Costanza, Farber, & Maxwell, 1989)
	Extreme Events	278.77	278.77	(Robert Costanza & Farley, 2007)
	Extreme Events	1,645.59	7,513.98	(Leschine, Wellman, & Green, 1997)
	Raw Materials	50.16	50.16	(Everard, Great Britain, & Environment
				Agency, 2009)
	Recreation	80.71	80.71	(Bergstrom, Stoll, Titre, & Wright, 1990)
	Recreation	1,716.76	1,761.89	(Brenner Guillermo, 2007) *
	Recreation	109.30	429.97	(Robert Costanza et al., 1989)
	Recreation	1,041.04	1,041.04	(Creel & Loomis, 1992)
	Recreation	88.06	994.50	(Gren & Söderqvist, 1994) *
	Recreation	71.11	71.11	(Gren, Groth, & Sylven, 1995) *
	Recreation	208.01	208.01	(Kreutzwiser, 1981)
	Recreation	209.51	209.51	(Lant & Roberts, 1990) *
Wetland	Recreation	648.57	4,203.82	(Whitehead, 1990)
	Waste	141.56	141.56	(Wilson, 2005) *
	Waste	67.02	67.02	(Breaux, Farber, & Day, 1995)
	Waste	1,050.34	1,050.34	(Brenner Guillermo, 2007) *
	Waste	170.05	170.05	(Gren & Söderqvist, 1994) *
	Waste	35.20	35.20	(Gren et al., 1995) *
	Waste	551.02	551.02	(Jenkins et al., 2010)
	Waste	209.51	209.51	(Lant & Roberts, 1990) *
	Waste	5,027.28	5,027.28	(Meyerhoff & Dehnhardt, 2004) *
	Waste	10,881.15	10,881.15	(Lui, 2006)
	Water	1,934.84	2,407.52	(Brenner Guillermo, 2007) *
	Water	622.77	622.77	(Creel & Loomis, 1992)
	Water	18.19	18.19	(Folke & Kaberger, 1991) *
	Water Flows	3,741.87	3,741.87	(Brenner Guillermo, 2007) *
	Water Flows	3,920.69	3,920.69	(Leschine et al., 1997)
	Water Flows	4,329.70	4,329.70	(UK Environment Agency, 1999)

Land Use	Ecosystem Service	Minimum \$/acre/year	Maximum \$/Acre/year	Source Study
				(2) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Aesthetic	1,006.06	1,322.31	(Qiu, Prato, & Boehrn, 2006)
	Air Quality	32.46	32.46	(G. McPherson, Scott, & Simpson, 1998)
Urban Onan	Air Quality	192.35	192.35	(G. E. McPherson, 1992)
Urban Open	Climate	1,134.38	1,134.38	(G. E. McPherson, 1992)
Space	Extreme Events	315.52	597.01	(Streiner & Loomis, 1995)
	Water Flows	8.32	8.32	(G. E. McPherson, 1992)
	Water Flows	138.22	187.58	(The Trust for Public Land, 2010)
	Climate	420.95	420.95	(Brenner Guillermo, 2007) *
Urban Other	Recreation	2,670.74	2,670.74	(Brenner Guillermo, 2007) *
	Water Flows	7.61	7.61	(Brenner Guillermo, 2007)

All values are adjusted for inflation to 2014 dollars.

^{*} Indicates source is from the TEEB database.

Are the Atlantic Coast Pipeline and the Mountain Valley Pipeline Necessary?

An examination of the need for additional pipeline capacity into Virginia and Carolinas

Prepared for Southern Environmental Law Center and Appalachian Mountain Advocates

September 12, 2016

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EXECUTIVE SUMMARY

The Southern Environmental Law Center and Appalachian Mountain Advocates retained Synapse Energy Economics, Inc. (Synapse) to determine whether proposed new interstate pipelines that would deliver natural gas from West Virginia to Virginia and the Carolinas are necessary to maintain adequate gas supply to the region. Two new interstate pipelines have been proposed to transport natural gas from the Marcellus Shale into Virginia and the Carolinas:

- 1) Atlantic Coast Pipeline (proposed by Dominion Pipeline, Duke Energy, Piedmont Natural Gas, and AGL Resources); and
- 2) Mountain Valley Pipeline (proposed by EQT Midstream Partners, NextEra US Gas Assets, WGL Midstream, and Vega Midstream MVP).

In their proposals, the developers of these projects assert that subscription rates for pipeline capacity demonstrate the need for additional natural gas in the target region, but they fail to compare the region's existing natural gas supply capacity to its expected future peak demand for natural gas. We undertake that comparison in this report. In the analysis presented here Synapse finds that, in fact, given existing pipeline capacity, existing natural gas storage, the expected reversal of the direction of flow on the existing Transco pipeline, and the expected upgrade of an existing Columbia pipeline, the supply capacity of the Virginia-Carolinas region's existing natural gas infrastructure is more than sufficient to meet expected future peak demand. This result raises significant questions about the need for additional investment in new interstate natural gas pipelines in the region and, more generally, the utility of pipeline subscription rates as justification for these projects.

Future demand for natural gas

Synapse developed low and high scenarios of future natural gas use for the study region, defined as Virginia, North Carolina, and South Carolina, to identify the expected range of likely demand for natural gas. Both low and high scenarios comply with the U.S. Environmental Protection Agency's limits for carbon dioxide emissions under the Clean Air Act. These limits consist of two separate regulations under Section 111(b) (Carbon Pollution Standards), which establishes federal standards for new, modified, and reconstructed power plants, and Section 111(d) (Clean Power Plan), which establishes state-based standards for existing power plants. While the demand for energy services is the same in each scenario, the low gas use scenario assumes greater energy efficiency savings and a more rapid build out of renewable generating facilities while the high gas use scenario assumes a greater number of retirements of coal-fired generating units and the use of new and existing natural gas-fired generators to meet emission goals.

In the high gas use scenario, renewable capacity and savings from energy efficiency in each state are determined by individual Renewable Portfolio Standards and Energy Efficiency Resource Standards. North Carolina is the only state in our study region with a Renewable Portfolio Standard, so its renewable capacity increases to meet its targets. Otherwise, renewable capacity and energy efficiency savings remain relatively constant in the high gas use scenario throughout the study period. Natural gas is used to meet Clean Power Plan targets, thus representing the outer bound of likely future natural gas demand. For both scenarios, Synapse estimated the highest combined electric and non-electric natural gas demand in any hour of the year in order to compare this "peak hour" value to the region's anticipated supply capacity of natural gas. If the region's natural gas infrastructure can supply sufficient gas during the peak hour of greatest demand, then there should be no obstacle to supplying gas during the rest of the year. Figure ES-1 shows the peak demand for natural gas in each year during the study period for the low gas use and high gas use scenarios.

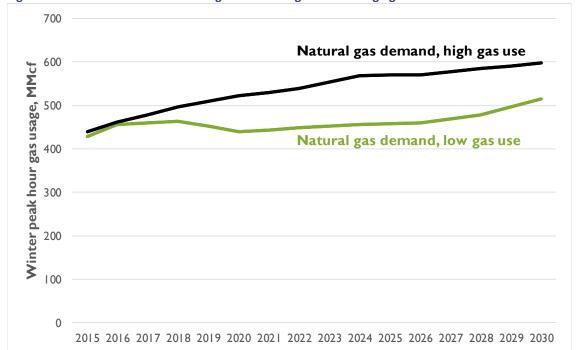


Figure ES-1. Peak demand for natural gas in the low gas use and high gas use scenarios

Future natural gas supply capacity

In Virginia and the Carolinas, peak demand for natural gas is satisfied by the combination of several different types of supply capacity, notably:

- Existing pipelines: The existing pipelines belonging to Transco, Cove Point, Columbia Gas Transmission, Dominion Transmission, Southern Natural Gas, South Carolina PL Corporation, East Tennessee Natural Gas, Nora Transmission, and Bluefield Gas have the capacity to supply just over 300 MMcf per hour into the study region.
- Reported natural gas storage: Storage is an essential part of every natural gas supply system and plays a critical role in meeting peak demand. Reported liquefied natural gas (LNG) and underground natural gas storage in the region has the capacity to supply 71 MMcf per hour. Not all owners of natural gas infrastructure are required to report storage capacity, so the region's maximum or actual natural gas storage is not known.

The "reported" storage value used in this analysis is, therefore, a conservative assumption and, indeed, is lower than the minimum amount of regional storage that existed in 2015 (that is, the difference between pipeline capacity and peak hour demand).

Expected reversals and upgrades of existing pipelines: The reversal of the Transco Mainline pipeline as part of the Atlantic Sunrise project has been proposed before the Federal Energy Regulatory Commission (FERC) and is expected to add the capacity to supply 254 MMcf per hour to the study region in 2017 (changing the export of 127 MMcf to an import of 127 MMcf, for a net change of 254 MMcf). The WB Xpress project, an upgrade to an existing pipeline proposed by Columbia Gas, would add an additional 73 MMcf per hour to the region beginning in 2018.

Result: Natural gas supply capacity exceeds peak demand

Figure ES-2 compares maximum expected natural gas demand (peak-hour demand in our high gas scenario) in years 2015 through 2030 to anticipated natural gas supply capacity on existing and upgraded infrastructure, including existing pipelines, reported storage, the 2017 reversal of the Transco Mainline pipeline, and the 2018 WB Xpress project. (Note that reported supply capacity is lower than actual peak hour demand in 2015 and 2016: In all likelihood, the gap in capacity to serve actual peak was supplied by natural gas storage facilities that are not reported in publicly available data sources.)

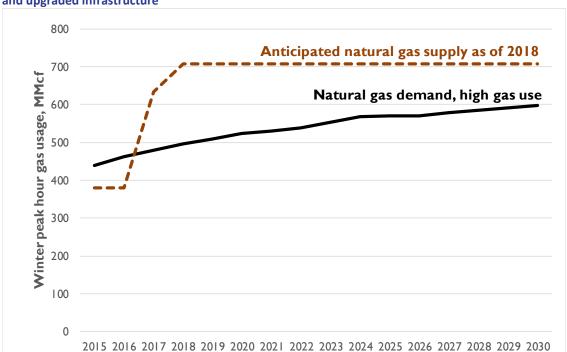


Figure ES-2. Maximum peak hour natural gas demand compared to anticipated natural gas supply on existing and upgraded infrastructure

For Virginia and the Carolinas, the anticipated natural gas supply capacity on existing and upgraded infrastructure is sufficient to meet maximum natural gas demand from 2017 through 2030: Additional interstate natural gas pipelines, like the Atlantic Coast and Mountain Valley projects, are not needed to keep the lights on, homes and businesses heated, and existing and new industrial facilities in production. This assessment of sufficient supply capacity includes only reported storage capacity, ignoring the existence of additional unreported storage capacity demonstrated by recent years' peak hour demand.

Assessing the need for pipeline investment

Interstate transmission pipeline infrastructure serving Virginia and the Carolinas is part of an interconnected system that includes pipeline and storage capacity both inside and outside of the region. Considering each new pipeline proposal as an isolated project ignores important alternatives that would increase regional natural gas supply capacity and avoid the adverse impacts on communities or the environment that can result from new construction. Alternatives to new pipeline construction include:

- Projects that reverse the flow of the Transco pipeline will lead to a significant increase in natural gas capacity in the Virginia and Carolinas region, and make new interstate transmission infrastructure (e.g., the proposed Atlantic Coast Pipeline and the Mountain Valley Pipeline) unnecessary to serve the market in Virginia and the Carolinas. Reversal of the Transco pipeline is one component of the proposed Atlantic Sunrise project.
- Investment in additional storage facilities may be a more cost-effective solution to boosting natural gas supply capacity in those few hours of the year where concerns exist regarding supply constraints.
- New or accelerated measures for gas energy efficiency, electricity energy efficiency, demand response (programs that pay large electric consumers to shift demand off of peak hours), and investment in renewable generating resources are critical tools to lower both annual and peak demand for natural gas.

To safeguard public interests, a determination of need for new pipeline infrastructure requires a detailed, integrated analysis of natural gas supply capacity and demand for the region as a whole.

1. INTRODUCTION

Two new interstate pipelines have been proposed to transport natural gas from West Virginia into Virginia and the Carolinas: 1) Atlantic Coast Pipeline (proposed by Dominion Pipeline, Duke Energy, Piedmont Natural Gas, and AGL Resources); and 2) Mountain Valley Pipeline (proposed by EQT Midstream Partners, NextEra US Gas Assets, WGL Midstream, and Vega Midstream MVP). The developers of both projects assert that these pipelines are necessary to meet regional energy demand now and in the future.

Interstate transmission pipeline infrastructure serving Virginia and the Carolinas is part of an interconnected system that includes natural gas pipeline and storage capacity both inside and outside of the region. For a pipeline developer to establish that a new interstate pipeline is necessary, it would need to demonstrate that existing natural gas capacity in Virginia and the Carolinas region is not sufficient to provide enough gas to meet the demand over the course of a year or—more importantly in the peak winter hour. For such a demonstration to be defensible, it would be necessary to base estimates of future capacity and demand of natural gas on detailed modeling of both the non-electric and electric sectors. If there were evidence of a capacity shortage in the model, it would likely present itself through higher natural gas prices and resulting higher electricity prices and/or through modeled results showing curtailment of natural gas-fired generators.

The developers of the Atlantic Coast and Mountain Valley proposal development projects assert that these pipelines are necessary to meet regional energy demand. Synapse conducted an independent examination of the validity of these statements by analyzing public documents relating to the proposed and existing natural gas infrastructure, and performing a modeling analysis of projected natural gas demand. We conducted our analysis in four steps:

- Estimation of winter peak non-electric demand in our study region
- Development of two scenarios of demand for natural gas in the electric sector and low, reference, and high sensitivity assumptions regarding the price of natural gas
- Assessment of future natural gas supply in our study region
- Analysis of balance between natural gas capacity and demand during the winter peak hour

Section 2 of this report provides an overview of the ways in which pipeline developers have assessed the need for their projects in the filings submitted to the Federal Energy Regulatory Commission. It then describes our own estimates of future peak demand for natural gas.

Note that a third pipeline, the Appalachian Connector Pipeline, has also been proposed by the Williams Company but the necessary application and supporting materials have not yet been filed with the Federal Energy Regulatory Commission.

Section 3 describes existing natural gas capacity infrastructure and anticipated future supply.

Section 4 compares existing and projected natural gas supply with natural gas demand during the winter peak for each modeled year.

Finally, three appendices present detailed modeling assumptions and results:

- Appendix A presents the methodology used to estimate non-electric demand.
- Appendix B presents the methodology used to estimate demand from the electric sector.
- Appendix C presents the methodology used to develop the estimates of winter peak natural gas use in the ReEDS model.

2. **FUTURE DEMAND FOR NATURAL GAS**

A determination of need for incremental pipeline capacity in the Virginia-Carolinas region requires a projection of future demand for natural gas from non-electric (residential, commercial, and industrial) and electric end uses. Residential and commercial use of natural gas is primarily for space and water heating and thus peaks annually in the winter when temperatures are lower. Industrial use often stays consistent from month to month. Regional use of natural gas for electric generation has historically been summer peaking; however, a slight decline in summer gas use in the past year, combined with an increase in winter gas demand, has resulted in similar gas consumption levels in the electric sector for both summer and winter peaks. As a result, when we combine the non-electric and electric uses for natural gas, we find that the "ultimate system peak," or hour of maximum natural gas demand, occurs in the winter. In order to ensure adequate supply to consumers, local distribution companies must be able to procure enough natural gas to reliably meet this ultimate system peak.

In their filings with the Federal Energy Regulatory Commission (FERC), pipeline developers must demonstrate that a market need exists for each of the proposed new pipelines, which should include detailed forecasts of expected end-use demand in the region. However, as described below, the developers' assessments of need rely primarily on Energy Information Administration (EIA), the statistical and analytical agency within the United States Department of Energy, projections of growth in natural gas used for electric generation.

2.1. Pipeline Developer Assessment of Need

The developers of the new natural gas pipelines proposed to run through Virginia and the Carolinas assert that their projects are necessary to meet future energy needs. Under Section 7(c) of the Natural Gas Act of 1938, FERC has jurisdiction over pipeline infrastructure and is authorized to issue certificates of "public convenience and necessity" for "the construction or extension of any facilities...for the

transportation in interstate commerce of natural gas." FERC's decision to grant or deny a pipeline certificate is based upon a determination of whether the pipeline project would be in the public interest. The agency accounts for several factors, including a project's potential impact on pipeline competition, the possibility of overbuilding, subsidization by existing customers, potential environmental impacts, avoidance of the unnecessary use of eminent domain, and other considerations. This determination relies heavily on a demonstrated market need for the proposed new pipeline. FERC requires assessments of the need for new natural gas supply in the study region. Those assessments, which reside in the Resource Report 1 documents filed by the developers, are summarized below.

Atlantic Coast Pipeline

The developers of the Atlantic Coast Pipeline attribute the need for the pipeline largely to their expectation of growth in future electric demand from natural gas generation. The developers cite data from EIA and the U.S. Census Bureau, stating that natural gas demand for all uses in Virginia and North Carolina has grown by 37 and 50 percent, respectively, between 2008 and 2012. The pipeline's developers claim that "demand for natural gas in Virginia and North Carolina is expected to increase in coming decades due to a combination of population growth and displacement of coal-fired electric power generation." They use the U.S. Census Bureau prediction that between 2000 and 2030, Virginia's population will grow by 2.7 million residents and North Carolina's by 4.2 million residents. ⁴ They also state that coal plant retirements and low natural gas prices will cause natural gas to surpass coal as the most common fuel for electric power generation in the region by 2035.⁵

The Atlantic Coast Pipeline developers commissioned a study from ICF International showing a scenario in which between 2019 and 2038 approximately 9,900 megawatts (MW) of coal and nuclear generating capacity in Virginia and North Carolina will retire, while the region builds 20,200 MW of new natural gas capacity. As a result, ICF predicts that demand for natural gas for electric power generation in the two states will "grow 6.3 percent annually between 2014 and 2035, increasing from 1 Bcf/d (billion cubic feet per day) to 3.7 Bcf/d."6

In April 2014, Duke Energy and Piedmont issued a request for proposals in North Carolina for incremental pipeline transportation service, citing their "existing and future natural gas generation requirements, core load growth, and system reliability and diversity goals." Virginia Power Services Energy Corp, Inc. issued a similar request to serve Virginia. These companies contracted for

² Natural Resource Group. 2015. *Draft Resource Report 1: General Project Description*. Prepared for Atlantic Coast Pipeline, LLC Docket No. PF15-6-000 and Dominion Transmission, Inc. Docket No PF15-5-000. Available online at: https://www.dom.com/library/domcom/pdfs/gas-transmission/atlantic-coast-pipeline/acp-shp-rr1-1.pdf.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid, page 1-5.

⁷ Ibid, page 1-5.

transportation service on the Atlantic Coast Pipeline, along with other companies in the region. According to the pipeline's developers, "over 90 percent of the new pipeline system's capacity has been contracted for in binding precedent agreements with major utilities and local distribution companies...(and) (t)he ACP [Atlantic Coast Pipeline] is not designed to export natural gas overseas; this is not a component of the purpose and need of the ACP."8

Mountain Valley Pipeline

The assessment of need from the developers of the Mountain Valley Pipeline has fewer details, though they also base their needs assessment on their expectation of growth in electric power generation from natural gas. Developers state that the EIA predicts total U.S. natural gas consumption will increase from 25.6 trillion cubic feet in 2012 to 31.6 trillion cubic feet in 2040, with much of this increase in demand coming from the electric sector. Developers also state that "the increased demand for natural gas is expected to be especially high in the southeastern United States, as coal-fired generation plants convert to or are replaced by natural gas fired generation plants. The infrastructure design of the Project is expected to benefit these regions by connecting the production supply to the market demand." Finally. according to the developers, "MVP [Mountain Valley Pipeline] may also support additional uses of natural gas in south central West Virginia and southwest Virginia by providing an open access pipeline that can facilitate interconnects and subsequent economic development associated with having access to affordable gas supplies, as these areas currently have limited interstate pipeline capacity." ¹¹The Mountain Valley Pipeline reports that it has secured 20-year commitments for firm transportation capacity for its full capacity, though the amount of gas that will be contracted for has not been reported at this time. 12

Summary

The assessment of need from the developers of these proposed pipelines rely entirely on the expectation that there will be significant growth in regional natural gas use for electric power generation over the next 20 years. Developers expect that the Atlantic Coast Pipeline and Mountain Valley Pipeline will primarily (1) serve new natural gas-fired electric generating units constructed to replace retiring coal units or (2) meet growing electric demand in Virginia and North Carolina. Both pipeline developers rely on projections of electric demand and infrastructure additions from the EIA; however, the EIA has

⁸ Ibid, page 1-7.

⁹ Mountain Valley Pipeline Project. 2015. *Resource Report 1 – General Project Description*. Prepared for Docket No. PF-15-3. Available online at: http://www.mountainvalleypipeline.info/current-news.

¹⁰ Ibid.

¹¹ Ibid.

¹² Business Wire. 2016. *Mountain Valley Pipeline Secures New Shipper Commitment with Con Edison.* Available online at: http://www.businesswire.com/news/home/20160122005701/en/Mountain-Valley-Pipeline-Secures-Shipper-Commitment-Con

revised its forecasts of electricity consumption steadily downward over the last 15 years, as shown in Figure 1.

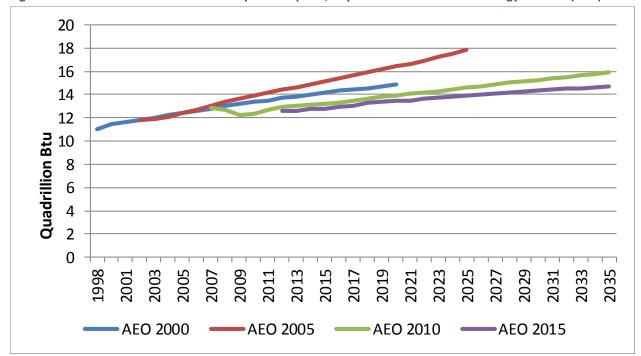


Figure 1. Historic EIA forecasts of electricity consumption, as published in the Annual Energy Outlook (AEO)

Pipeline developers also rely on subscription rates as a demonstration of need for new pipeline capacity. However, many of the customers that have contracted for capacity on these proposed pipelines are affiliates or subsidiaries of the pipeline owners, and are regulated utilities that pass pipeline costs to consumers through rates.

Of the two proposed pipeline developers that have filed an assessment of need, only the Atlantic Coast Pipeline developer did a modeling study to quantify the projected increase in natural gas demand. Neither developer assessed current and projected pipeline and storage capacity in the region to determine whether it is adequate to meet a projected increase in natural gas demand.

Pipeline Economics

Insufficient capacity to meet expected future natural gas demand is not the only reason that may explain proposals to develop new natural gas pipelines. Reasons for private investors to advance proposals for new natural gas supply infrastructure also include:

A secure return on investment: Guaranteed—or otherwise very secure—avenues for returns on investments in natural gas pipelines are possible if utilities receive legislative, utility commission, or FERC approval to recover pipeline expenditures from gas or electric customers. These returns are, at time, higher than those for other investment opportunities.

- Market benefits from lower or higher natural gas prices: Large corporations with diverse holdings may take actions that depress or inflate the price of natural gas. These actions may have complex benefits in other related markets such as providing a stimulus for additional fuel switching to natural gas.
- Commitment to the future of natural gas: For corporations with both deep and widespread investments in the future of natural gas, actions to further entrench public energy infrastructure in this fuel may have long-run benefits unrelated to meeting current or near-future demand.
- Interplay between market competitors: Companies that have the development of natural gas pipelines as a core business area may propose pipelines early—before their competitors—as part of a long-run strategy to protect their market share.
- Overseas exports: The expected rapid expansion of U.S. exports of liquefied natural gas (LNG) over the next five to ten years will require sufficient infrastructure to deliver natural gas to existing and proposed LNG terminals. Pipeline developers that are confident that demand for U.S. LNG exports is on the rise have an additional motivation to expand their ownership interests in natural gas supply infrastructure.

2.2. **Estimates of Peak Demand for Natural Gas**

Synapse projected peak demand for natural gas in Virginia and the Carolinas from 2015 to 2030. This projection had two components: non-electric natural gas demand and demand for natural gas from the electric sector. Forecasts of non-electric demand for natural gas reflect demand projections from natural gas suppliers in the Virginia-Carolinas region under a single scenario, commonly referred to as the "design-day" forecast. However, demand for natural gas from the electric sector is highly dependent upon the compliance pathway that each state decides to pursue to meet its individual reduction targets for emissions of carbon dioxide (CO₂) as established under the Clean Air Act's regulation of new and existing power plants.

We estimated peak natural gas demand under two scenarios: (1) a low gas use scenario that assumes compliance with the Clean Air Act through greater energy efficiency savings and a more rapid build out of renewable generating facilities; and (2) a high gas use scenario that assumes increased use of natural gas for electric power generation (thus representing the maximum expected gas use in the region). As described in more detail in Appendix A, we relied primarily on filings from natural gas distribution companies with the public utility commissions in their respective states as the basis for our forecast of non-electric natural gas use. For the electric sector, we used the National Renewable Laboratory's Regional Energy Deployment System (ReEDS model) to simulate electric system dispatch in the Eastern Interconnection and provide the forecasted volume of peak natural gas use under our high gas use and low gas use scenarios.

We then combined the forecast of peak non-electric demand with the forecasts of electric sector natural gas demand under both the high gas use and low gas use scenarios, as shown in Figure 2.

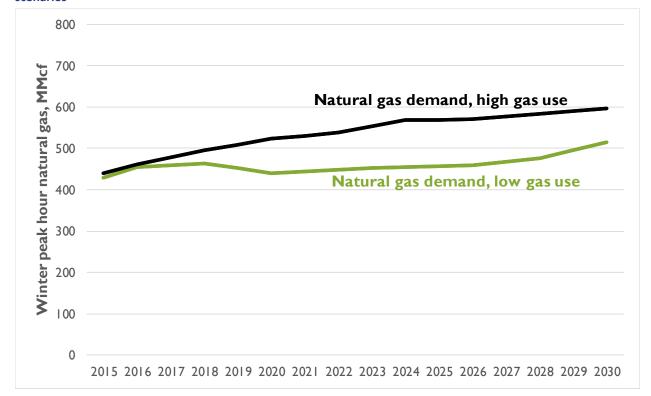


Figure 2. Combined peak demand for natural gas (non-electric and electric) in the low gas use and high gas use scenarios

As shown in Figure 2, total demand for natural gas is higher in the high gas use scenario when companies rely on gas-fired generators to meet Clean Air Act goals. Demand in the peak hour reaches 597 MMcf in 2030 in this scenario, which reflects the maximum possible gas use in the region during the study period, compared to a peak-hour demand of 515 MMcf in the scenario that relies upon increased additions of renewable energy and energy efficiency in order to meet emissions reduction targets for CO₂.

3. ANTICIPATED NATURAL GAS SUPPLY ON EXISTING AND Upgraded Infrastructure

A determination of need for additional incremental pipeline capacity in the Virginia-Carolinas region also requires an inventory of existing natural gas infrastructure and planned upgrades and modifications to that infrastructure and an assessment of whether or not that supply flow is adequate to meet projected demand. The forms of natural gas capacity infrastructure considered in this analysis include existing pipeline capacity, existing storage, and future reversals and expansions of existing pipelines that would bring additional natural gas into the Virginia-Carolinas region. Inter- and intrastate natural gas pipelines transport gas from producing areas to both local distribution companies and directly to large consumers

like electric power plants. These natural gas supplies typically help regions meet baseload (that is, average or everyday) natural gas demand, while storage resources contribute to meeting peak demand. Natural gas can be stored underground in aquifers, salt caverns, and depleted oil and gas fields, as well as aboveground in tanks that allow storage in liquid form.

Figure 3 gives an example graphical representation of the relationship between natural gas demand and natural gas supply infrastructure. The graph shows the forecasted winter demand for natural gas in 2015 and the supply available in the region from Piedmont Natural Gas, a distributor of natural gas in North and South Carolina, to meet that demand. The black line represents natural gas demand, and the colored rectangles represent the various types of capacity infrastructure used to meet demand on a given day. The graph shows pipeline capacity at the bottom of the stack, with the Transco, Columbia, Sunbelt, and East Tennessee pipelines providing natural gas in each of the 151 days shown on the graph. Base storage capacity is shown in the middle of the graph, and is represented by the Hardy storage facility as well as the storage services available on the Dominion, Columbia and Transco systems. Finally, the top tier of the graph shows available LNG storage, which is used to meet demand on a small number of peak winter days, and includes the Pine Needle, PNG LNG, and Transco LNG facilities. Note that in 2015 the Piedmont Natural Gas territory—as is common throughout the Virginia-Carolinas region requires natural gas storage facilities in order to adequately supply natural gas on approximately 50 percent of winter days.

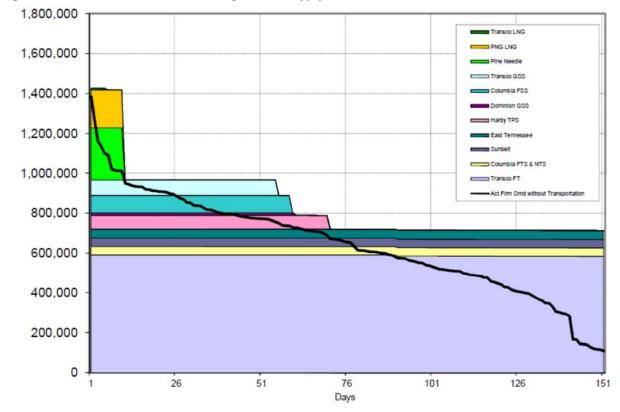


Figure 3. Piedmont Natural Gas 2015 design winter supply and demand - total Carolinas

Source: Piedmont Natural Gas. Testimony and Exhibits of Michelle R. Mendoza before the Public Service Commission of South Carolina. Docket No. 2015-4-G. June 3, 2015.

Synapse reviewed available information on existing pipelines in Virginia and the Carolinas in order to determine the capacity of the region's current natural gas infrastructure. Existing natural gas capacity comprises:

- existing pipeline capacity in the three-state region of Virginia, North Carolina, and South Carolina; and
- existing storage capacity within the region.

The following sections describe the region's existing and projected natural gas infrastructure in more detail.

Existing Pipelines 3.1.

To estimate existing capacity in this analysis, we considered "historical in-flow," which limits the capacity to the pipeline inflow that existed in 2014, less any contracts out of the region. It is important to note that not all natural gas that originates in or passes through the region is meant for local use. We exclude

gas under contract for capacity outside of the region from our estimation of the volume of gas available to contribute to in-region capacity. Figure 4 shows the existing pipelines currently in place in the region, along with a table detailing the current in-flow and out-flow capacity of these pipelines according to EIA data from 2014.

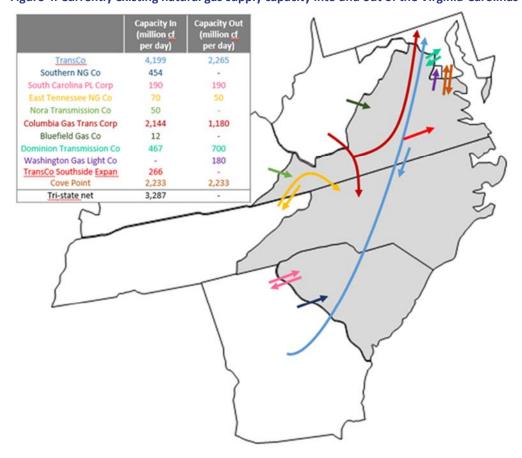


Figure 4. Currently existing natural gas supply capacity into and out of the Virginia-Carolinas three-state region

Source: Synapse analysis based on data from EIA. U.S. state-to-state capacity. December 2014. Available at: http://www.eia.gov/naturalgas/pipelines/EIA-StatetoStateCapacity.xls. Note: Locations of pipelines are approximate and are not meant to portray the exact pipeline locations.

Note that the Williams Company placed the Transco Virginia Southside Expansion project into service in September 2015. 13 The 2014 EIA data shown in Figure 4 does not include that project, and Synapse added it to our estimate of the existing total pipeline capacity.

Figure 4 above shows the net capacity from existing pipelines in MMcf per day. In order to calculate the capacity from existing pipelines in the peak hour, we employ the industry standard assumption that 5.6

¹³ Williams Company. 2015. "Williams' Transco Completes Virginia Southside Expansion." September 1. Available online at: http://investor.williams.com/press-release/williams/williams-transco-completes-virginia-southside-expansion

percent of daily gas demand occurs in the peak hour. 14 Estimated natural gas capacity available from existing pipelines during the peak hour is approximately 309 MMcf for the duration of the analysis period.

3.2. **Natural Gas Storage**

While natural gas pipeline capacity is used to meet baseload (average day-to-day) demand for natural gas, gas storage facilities play an essential role in meeting peak demand. As a standard, continual practice, natural gas is injected into these storage facilities during periods of low gas demand and withdrawn during peak periods. Peak send-out capacity in the Virginia-Carolinas region must provide sufficient volumes of natural gas to meet demand on even the coldest winter day. To do so requires a combination of pipeline and storage capacity resources.

Natural gas can be stored in several ways:

- Underground reservoirs are the primary form of natural gas storage, and consist of depleted oil and gas reservoirs, aquifers, and salt caverns. Suppliers can draw from these underground facilities to meet base demand or demand during peak periods.
- **Aboveground facilities,** such as LNG storage tanks, serve primarily during periods of peak demand and offer several advantages over underground facilities. LNG storage occupies less space than underground facilities, as they store natural gas in liquid form. For this reason, they tend to be in closer proximity to end-use markets and can often provide higher levels of deliverability on short notice.
- "Line packing," in which natural gas is stored temporarily in existing pipelines by packing additional gas volumes into pipelines, provides additional natural gas during peak demand periods.

Owners and operators of natural gas storage facilities tend to be: 1) interstate and intrastate pipeline companies, which use storage to meet the demand of end-use customers; 2) local gas distribution companies, which use gas from storage to serve customers directly; and 3) independent storage service providers. Government authorities do not require all owners and operators of natural gas infrastructure to report their storage capacity, so we do not know the region's maximum or actual natural gas storage. We collected the Pipeline and Hazardous Materials Safety Administration's partial data on LNG facilities in the Virginia-Carolinas region, as well as EIA's data on the region's underground storage facilities. Together, these values make up the "reported" storage value used in this analysis. The hourly capacity contribution of reported storage is estimated to be 71 MMcf per hour and is shown in Table 1, below.

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Levitan & Associates, Inc. 2015. Gas-Electric System Interface Study Target 2 Report: Evaluate the Capability of the Natural Gas Systems to Satisfy the Needs of the Electric Systems. Prepared for the Eastern Interconnection Planning Collaborative. p.82. Available online at:

Table 1. Storage capacity of LNG and underground facilities with deliverability to the Virginia-Carolinas region

Company Name	Facility Type	Facility Name	State	Total Daily Capacity (MMcf)	Hourly capacity (MMcf)
Columbia Gas of Virginia Inc	LNG	Lynchburg LNG	VA	6	0.3
Columbia Gas Transmission, LLC	LNG	Chesapeake LNG	VA	120	5.0
Greenville Utilities Commission	LNG	LNG Plant	NC	24	1.0
Piedmont Natural Gas Co Inc	LNG	Bentonville LNG	NC	180	7.5
Piedmont Natural Gas Co Inc	LNG	Huntersville LNG	NC	200	8.3
Public Service Co of North Carolina	LNG	PSNC Energy LNG	NC	110	4.6
Roanoke Gas Co	LNG	LNG Facility	VA	30	1.3
South Carolina Electric & Gas Co	LNG	Salley LNG	SC	90	3.8
South Carolina Electric & Gas Co	LNG	Bushy Park LNG	SC	60	2.5
Pine Needle Operating Company, LLC	LNG	Pine Needle LNG	NC	400	16.7
Columbia Gas/Piedmont Natural Gas	Underground	Hardy	WV	170.9	7.1
Spectra Energy	Underground	Early Grove	VA	20	0.8
Spectra Energy	Underground	Saltville	VA	300	12.5
	Total			1,710.9	71.3

Sources: (a) Pipeline and Hazardous Materials Safety Administration. Distribution, Transmission & Gathering, LNG, and Liquid Annual Data. Liquefied Natural Gas (LNG) Annual Data – 2010 to present. Available at http://phmsa.dot.gov/pipeline/library/datastats/distribution-transmission-and-gathering-Ing-and-liquid-annual-data; (b) US EIA. Natural Gas Annual Respondent Query System (EIA-191 Data through 2015). Available at http://www.eia.gov/cfapps/ngqs/ngqs.cfm?f_report=RP7

The estimate of 71 MMcf per hour from storage is a conservative assumption. The Hardy storage facility in West Virginia is included in this estimate because publicly available documentation demonstrates that distribution companies in the Virginia-Carolinas region contract for storage with this facility. In addition, EIA data show the existence of an additional 149 MMcf/hour of active natural gas storage in West Virginia that we did not include in our estimate due to lack of evidence that this storage was contractually available to local distributors in our study area.

3.3. Planned Reversals and Expansions of Existing Pipelines

The major interstate pipelines continue to announce new expansion projects aimed at delivering gas from the Marcellus area to reach anticipated markets. Of the many proposals submitted to FERC that would affect markets across the United States, several propose large-scale expansion projects intended to deliver natural gas to the Virginia-Carolinas region.

The largest of these is Transco's Atlantic Sunrise project, which would reverse the flow of the Transco pipeline and allow the company to provide 1,675 MMcf per day of incremental firm transportation capacity for natural gas from northern Pennsylvania through our study region, terminating in Alabama. The expected in-service date for the project is July 1, 2017. ¹⁵ Transco in-flows and out-flows were

¹⁵ Transcontinental Gas Pipe Line Company, LLC. 2015. Resource Report No. 1: General Project Description. Prepared for Atlantic Sunrise Project Docket No. CP15-138. Available online at: http://elibrary.ferc.gov/idmws/file list.asp?accession num=20150331-5153



Synapse Energy Economics, Inc.

included in our calculations of existing pipeline capacity. We assume that with the reversal of the Transco pipeline, the out-flows would be eliminated, and there would be a corresponding increase of inflows, resulting in a net gain of 254 MMcf per hour of peak capacity from the Atlantic Sunrise project.

NiSource's Columbia Gas Transmission Company (TCO) has announced a number of new pipeline expansion projects including its WB Xpress project, designed to send additional shale gas supplies (about 1.3 Bcf per day) east from the Marcellus to West Virginia, Virginia, and the Cove Point LNG facility in Maryland. The WB XPress project would replace about 26 miles of existing TCO pipeline with a new line of the same diameter. Increased flows would result from the use of higher pressures that the new line would carry. The project, which the company anticipates being in-service in 2018, would add approximately 73 MMcf per hour of peak capacity.

NATURAL GAS SUPPLY EXCEEDS DEMAND 4.

Figure 5 compares our modeled maximum expected natural gas demand (peak-hour demand in our scenario of high gas use) in years 2015 through 2030 to future natural gas infrastructure, including existing pipeline capacity, reported storage, the expected 2017 reversal of the Transco Mainline pipeline, and the expected 2018 WB Xpress project. (Note that reported capacity is lower than actual peak hour demand in 2015 and 2016. In all likelihood, the gap in capacity to serve actual peak was supplied by natural gas storage facilities that are not reported in publicly available data sources and/or by some portion of the 149 MMcf/hour of active storage located in West Virginia.)

The region's anticipated natural gas supply on existing and upgraded infrastructure is sufficient to meet maximum natural gas demand from 2017 through 2030. Additional interstate natural gas pipelines, like the Atlantic Coast Pipeline and the Mountain Valley Pipeline, are not needed to keep the lights on, homes and businesses heated, and industrial facilities in production. This assessment of sufficient capacity includes only reported storage capacity, ignoring the existence of additional unreported storage capacity demonstrated by recent years' peak hour demand.

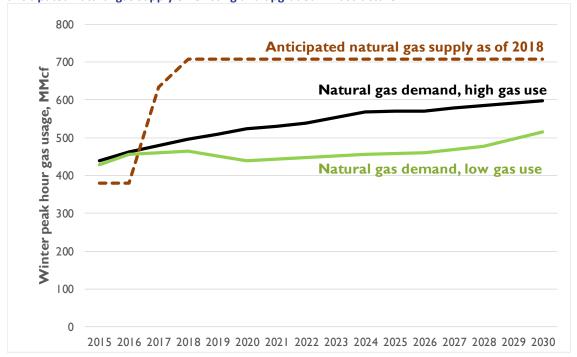


Figure 5. Peak hour natural gas demand under scenarios of low and high natural gas use compared to anticipated natural gas supply on existing and upgraded infrastructure

Figure 5 shows an excess of natural gas supply under a scenario of maximum natural gas demand. The policy pathway chosen by states for compliance with Clean Power Plan emissions reduction targets has a significant impact on the magnitude of this excess supply capacity, as shown in Figure 7. Under the high natural gas use scenario, where Clean Power Plan compliance is achieved primarily through the addition of new natural gas combined-cycle power plants, peak demand for natural gas climbs steadily throughout the study period and results in excess natural gas supply of approximately 100 MMcf per hour in 2030. In contrast, the low gas use scenario, which minimizes the addition of new NGCC generators and instead relies on new installations of renewable energy capacity and savings through efficiency measures, results in surplus supply of almost 200 MMcf per hour.

Projected future natural gas demand depends greatly on the policies pursued by each of the states in this analysis. While non-electric natural gas demand remains fairly constant during our analysis period, natural gas demand from the electric sector rises significantly over time in a scenario of high natural gas use, where the states pursue Clean Power Plan compliance through the use of new natural gas generating capacity. If states choose to pursue additional energy efficiency and renewable energy capacity under a scenario of low gas use, combined natural gas demand rises much more slowly over time and results in an even greater capacity surplus in 2030.

APPENDIX A: NON-ELECTRIC DEMAND METHODOLOGY AND DATA Sources

As an input to our modeling, we calculated projected demand for natural gas in Virginia and the Carolinas from 2015 to 2030. 16 This projection had two components: non-electric natural gas demand and demand for natural gas from the electric sector. As described below, we relied primarily on EIA data for the former and we used the Regional Energy Deployment System (ReEDS model) to calculate the latter. We projected natural gas demand for two different time periods, first calculating annual natural gas demand, and next making a projection of winter peak demand—the amount of natural gas consumed in both sectors at the hour of maximum demand. This section describes the methodology and data sources used to forecast non-electric natural gas demand, while Appendix B provides further detail on the methodology and data sources used to estimate natural gas demand from the electric sector.

Synapse based its forecast of non-electric natural gas demand for the states included in the analysis— North Carolina, South Carolina, and Virginia—on data from EIA's 2015 Annual Energy Outlook (AEO). EIA publishes data on forecasted natural gas demand in the residential, commercial, industrial, and transportation sectors for the South Atlantic Region of the United States through 2040. We took the historical natural gas consumption rates by state and by sector and applied them to the forecasted regional natural gas demand in order to arrive at a forecast of annual non-electric demand for each of the three states in our analysis. These results are shown in Figure A-1.

¹⁶ U.S. Energy Information Administration. 2015. *Annual Energy Outlook*.



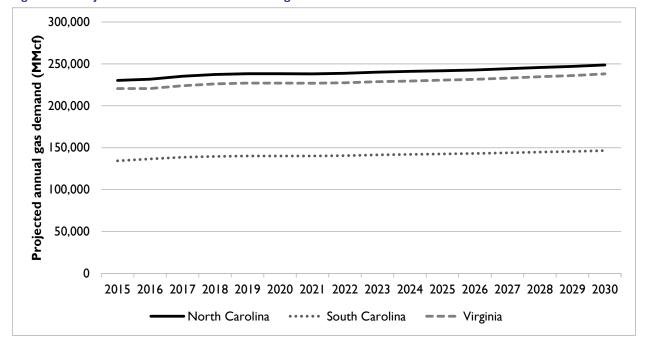


Figure A-1. Projected annual non-electric natural gas demand

Source: EIA 2015 Annual Energy Outlook.

Second, projected non-electric winter peak demand was calculated using filings with state public utilities commissions from the 13 gas distribution companies located within the three states in this analysis. We reviewed filings from each local distribution company for the most recent year to determine the companies' "design day" natural gas requirements—the volume of gas needed to meet customer demand on the coldest winter day—and then summed the results across the distribution companies to arrive at design day totals for each of the three states. Companies typically presented results for the next one to five years in the future. Based on these results, we calculated compound annual growth rates for each company and applied them to future years to generate a forecast through 2030. In order to arrive at peak hour requirements from the design day, we assumed that the volume used in the peak hour of the design day represents 5.6 percent of the total design day volume. 17 Those projections of non-electric winter peak demand are shown in Figure A-2. Projected peak hour non-electric natural gas demand In the peak hour, non-electric natural gas requirements rise gradually throughout the modeled period, beginning at 306 MMcf in 2015 and rising to 366 MMcf in 2030.

http://nebula.wsimg.com/c1a27fe57283e35da35df90f71a63f7a?AccessKeyId=E28DFA42F06A3AC21303&disposition=0&allo worigin=1



¹⁷ Levitan & Associates, Inc. 2015. Gas-Electric System Interface Study Target 2 Report: Evaluate the Capability of the Natural Gas Systems to Satisfy the Needs of the Electric Systems. Prepared for the Eastern Interconnection Planning Collaborative. p.82. Available online at:

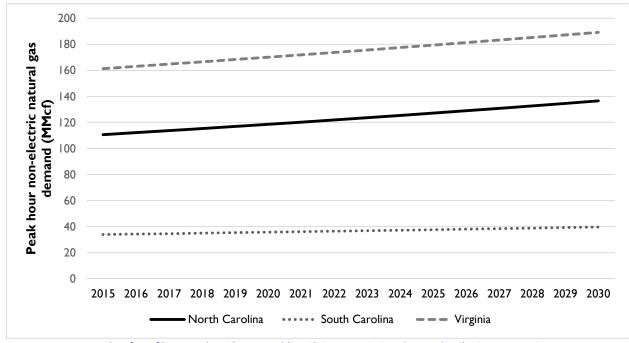


Figure A-2. Projected peak hour non-electric natural gas demand

Source: Data were taken from filings made with state public utilities commissions by gas distribution companies

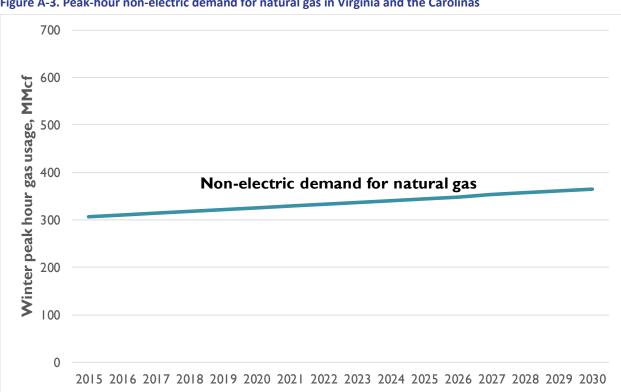


Figure A-3. Peak-hour non-electric demand for natural gas in Virginia and the Carolinas

These methodologies resulted in forecasts for both annual and peak non-electric natural gas demand. Demand from the electric sector was derived from electric sector modeling, and is described in the next section.

APPENDIX B: ELECTRIC DEMAND METHODOLOGY AND DATA Sources

Electric sector modeling scenarios of low and high natural gas use were designed to comply with the U.S. Environmental Protection Agency's limits for carbon dioxide emissions under Sections 111(b) and 111(d) of the Clean Air Act, released on August 3, 2015. Section 111(b) (the Carbon Pollution Standards) sets emissions limits for new fossil-fueled power plants that commenced construction after January 8, 2014, or units that were modified or reconstructed as of June 18, 2014. Separate standards exist for coal- and natural gas-fired units, but each reflects the degree of emission limitation that EPA believes represents the best system of emission reduction (BSER) for each type of unit. The standard for new and reconstructed natural gas that is operating under baseload conditions is 1,000 pounds of CO2 per MWh on a gross-output basis, while non-baseload units must meet a clean fuels input-based standard. Standards for coal-fired plants depend on whether the unit is new, reconstructed, or modified. New coal-fired power plants must meet a standard of 1,400 pounds of CO2 per MWh-gross; reconstructed units must meet a standard of either 1,800 or 2,000 pounds of CO2 per MWh-gross, depending on their heat input; and the standards for modified facilities are plant specific and are consistent with best annual historical performance.

Section 111(d) (the Clean Power Plan) aims to reduce emissions of carbon dioxide (CO₂) from existing fossil fuel-fired power plants by approximately 30 percent below 2005 levels by 2030. Each state's approach to compliance with the proposed Clean Power Plan—its choice of what new resources to build and how much to run existing fossil-fuel generators—will have a critical role in determining how much electric-sector natural gas is needed in future years. In order to meet the emission reduction goals set by EPA, states must develop plans that will reduce their average CO₂ emission rate at affected generating units from a 2012 baseline rate to a lower state-specific target rate by 2030. In its proposed Clean Power Plan, EPA offers each state the flexibility to choose either mass- or rate-based targets for compliance.

We conducted modeling of electric sector demand in two steps. First, we developed two scenarios of Clean Power Plan compliance: (1) a scenario of high natural gas use that complies with emissions reduction targets through the use of new natural gas generators, and (2) a scenario of low natural gas use that relies on energy efficiency and installations of new renewable energy capacity to meet targets. We then screened them using Synapse's own Clean Power Plan Planning Tool (CP3T), which allows users to design future energy scenarios for Clean Power Plan compliance, to examine the various compliance pathways available to a state, and quantify the costs associated with those pathways.

The second step was to input these scenarios into the National Renewable Energy Laboratory's Regional Energy Deployment System (ReEDS) model, which dispatches the electric generators in the Eastern Interconnect in order to meet electric demand and provides annual values of natural gas use from the electric sector over our study period. ReEDS is a deterministic optimization model that provides a detailed representation of the electricity generation and transmission systems in the contiguous United States. It draws many of its assumptions from EIA's 2014 AEO. There are 356 resource supply regions in ReEDS, which are grouped into four tiers of larger regional groupings: balancing areas, reserve sharing

groups, North American Electric Reliability Council (NERC) regions, and interconnects. States are also represented in such a way that state policies can be depicted accurately. ReEDS contains 17 annual "time-slices," representing the various ways that electricity loads are met throughout each day and year using all major generator types. One of these 17 time slices is representative of a summer peak—a collection of the highest 40 non-consecutive hours in the summer season, represented by a single "superpeak" time slice. The purpose of this analysis, however, was to evaluate the natural gas requirements for the winter peak hour, which is not represented by any of ReEDS 17 time slices. Synapse performed custom modifications to the underlying ReEDS code to add a winter superpeak time slice, which represents the single hour between the winter months of November and February in which electricity demand is at its highest. For more information on the winter peak modifications made to ReEDS, see Appendix C.

We began our modeling under a set of input assumptions for forecasting future retail sales of electricity, distributed solar PV adoption, natural gas prices, non-coal unit retirements, and announced unit additions through 2020. Future retail sales are based on EIA AEO data. Distributed solar PV adoption rates come from the SunShot 50 trajectory, which is the NREL trajectory that assumes that the cost of solar is reduced by 50 percent by 2020 and then remains constant—a conservative assumption. Natural gas prices used by the model are the regional forecasts from EIA's AEO. Announced unit retirements and additions were included in the modeling based on announcements from electric utilities in the study region.

We then had to develop two different scenarios of natural gas use in the Virginia-Carolinas region that met mass-based Clean Power Plan emission targets without significant over compliance. Mass-based targets were selected for modeling accuracy, and we assumed the new source complement in order to avoid emissions leakage to new power plants. This required the use of the CP3T and ReEDS models in combination. Electric sector capacity build-outs under the two different scenarios—one of which added significant amounts of new NGCC capacity to yield the highest likely estimate of natural gas demand, and one of which relied on new renewable capacity and energy efficiency—were first tested in CP3T for compliance. If those build-outs were found to achieve compliance within CP3T, which does not account for the electricity market interactions between states in the Eastern Interconnect, those values were then input into the ReEDS model, which does capture those market interactions. This ensures that interactions between states are adequately captured in terms of electricity imports and exports from one state to another. The outputs from the resulting ReEDS runs were then input back into CP3T in order to check for CPP compliance. Several iterations of CP3T/ReEDS modeling were required before we arrived at the capacity build-outs for the high gas use scenario (the addition of new NGCC generators) and for the low gas use scenario (the addition of renewable energy and energy efficiency) that would allow compliance with the emission targets established by the Clean Power Plan.

Natural gas price sensitivities

Synapse modeled each of the three scenarios described above with a mid-level, Reference Case natural gas price forecast and evaluated sensitivity cases that examined the effects of natural gas use in the electricity sector under high and low natural gas price forecasts. The mid-level natural gas price forecast was taken from the EIA's AEO 2015 South Atlantic Reference Case. Because the sensitivity case forecasts are only published biannually, the low natural gas price sensitivity forecast was determined by multiplying the Reference Case forecast by the ratio of the High Oil and Gas Resource Case ¹⁸ to the regional Reference Case found in AEO 2014. Similarly, the high natural gas price sensitivity forecast was determined by multiplying the Reference Case forecast by the ratio of the Low Oil and Gas Resource Case to the regional Reference Case found in AEO 2014. Those natural gas prices are shown in Figure C-1, below.

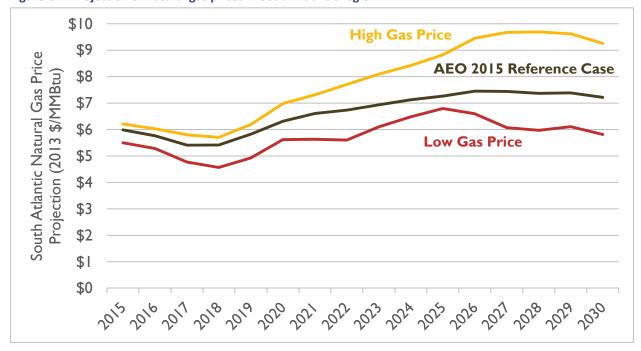


Figure C-1. Projection of natural gas prices in South Atlantic region

Synapse input the combinations of scenarios/sensitivities into the ReEDS model, which dispatched the future electric system to meet forecasted electricity demand throughout the analysis period. After running the various scenarios through the ReEDS model, Synapse exported the volume of natural gas, in million cubic feet (MMcf), used for electricity generation in each of the states in the analysis. These data were exported into an Excel spreadsheet both on an annual basis and at the hour of peak demand in each year, from 2015 to 2030, for each modeling scenario. Synapse combined this information with the non-electric demand for natural gas to analyze the need for additional pipeline capacity.

¹⁸ The High Oil and Gas Resource Case assumes large volumes of available oil and natural gas resources, leading to lower prices for oil and gas. Conversely, the Low Oil and Gas Resource Case assumes limited available oil and natural gas resources, leading to higher prices.

APPENDIX C: WINTER PEAK MODELING

NREL's ReEDS model is a national-scale long-range generation capacity expansion planning model with the process of economic dispatch represented through seventeen "time slices" that make up the entire year. NREL chose time slices to appropriately represent times of the year (season) and times of the day when electricity power system operations are expected to be (approximately) similar. For reliability planning purposes, peak demand must be represented; ReEDS does this by collecting the highest 40 non-consecutive hours in the summer season, and representing them with a single "superpeak" time slice, H17. The other sixteen time slices original to ReEDS are shown in Table C-1.

While the summer superpeak is well represented in ReEDS, the winter peak is not. In the original version of the model, each time slice for winter (H9 - H12) is represented as the average load (GW) across all hours encompassed in the time slice. Although this is a very common methodology to keep long-range capacity planning models tractable, the equivalent of a winter season "superpeak" is missed, which in some areas can be significantly different than the average loads represented by the current wintertime slices.

The purpose of the changes Synapse made to the ReEDS model is to represent this winter superpeak for modeling gas-demand in the West Virginia, Virginia, North Carolina, and South Carolina (WV-VA-NC-SC) region. Synapse decided to implement the new winter superpeak using a single peak hour from November – February in the four-state WV-VA-NC-SC region. Below are the steps taken to develop the new one-hour winter superpeak version of the NREL ReEDS model, as well as a snapshot of results from a validation of the model.

Table C-1. Original ReEDS time slice definitions

Time Slice	Hours	season	time of day		
HI	736	summer	I0PM-6AM		
H2	644	summer	6AM-IPM		
H3	328	summer	IPM-5PM		
H4	460	summer	5PM-10PM		
H5	488	fall	I0PM-6AM		
H6	427	fall	6AM-IPM		
H7	244	fall	IPM-5PM		
H8	305	fall	5PM-10PM		
H9	960	winter	I0PM-6AM		
HI0	840	winter	6AM-IPM		
HII	480	winter	IPM-5PM		
HI2	600	winter	5PM-10PM		
HI3	736	spring	I0PM-6AM		
HI4	644	spring	6AM-1PM		
HI5	368	spring	IPM-5PM		
HI6	460	spring	5PM-10PM		
HI7	40	summer	superpeak		
	8 760 (total)		-		

8,760 (total)

Source: NREL ReEDS Model.

Methodology

Step 1. Review ReEDS code, input tables, and time slice dependent equations

The first step in developing the capability of ReEDS to model a single-hour winter peak was to understand the structure of the underlying GAMS code, how the inputs interact with the code, and most importantly—where the electricity demand and time period definitions are represented within the equations of the model. Synapse reviewed each GAMS file and all worksheets in the Excel workbook used to modify inputs to understand how "hard-coded" the time slice definitions were in the model and whether they would adapt to changes in the input Excel file. The programming code was also reviewed to ensure that optimizing dispatch over a single hour, where multiple hours used to be aggregated, would not cause instability in the mathematical algorithm itself. Synapse determined that as long as we left the "H17" summer superpeak intact (which was hard-coded in many places in the model), we could make all but one modification¹⁹ to represent the single hour in the ReEDS Excel input file. The NREL

¹⁹The single modification made in the actual GAMS code involved adding the new winter superpeak to a set of time slices ReEDS represents as "not peak." GAMS reserve margin calculations exclude these extraordinary peaks, so per NREL's

ReEDS model development team²⁰ confirmed that no stability issues or other model infractions would result from representing a single-hour dispatch in the ReEDS dispatch algorithm.

Step 2. Determine new time slice designations

Synapse repurposed an existing time slice to represent the single highest one-hour period during the winter (November, December, January, and February in ReEDS), and used another time slice to "absorb" the remaining hours. Using an existing time slice to represent the single hour (rather than adding an 18th time slice) prevented the need for any major modifications to the underlying GAMS code or run the offline GIS-based meteorological models that NREL runs to inform several different inputs for each of the time slices.

We used the two time slices in the winter months that had the most similar levels of demand (on balance, across all power control areas [PCA], in our region of interest). Figure C-1 below shows the levels of demand by time slice and PCA for WV-VA-NC-SC in the model. Table C-2 provides the percentage differences between the possible pairs of time slices, showing the high level of similarity between the H10 and H12 slice for most of the PCAs, and the average difference across PCAs by time slice weighted by the level of demand in each PCA. As the table shows, the H10 and H12 slices are by far the most similar with respect to level of demand.

 $^{^{20}}$ NREL, 2015. Personal communication with Stuart Cohen, June 4, 2015.



suggestion, the new winter peak time slice (described in more detail in the following steps) was also excluded from the reserve planning margin calculation.

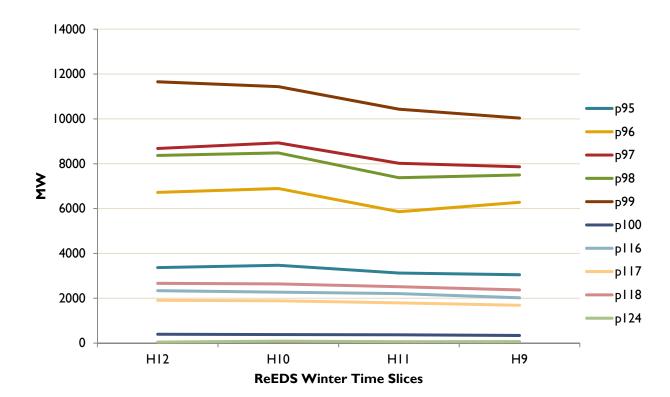


Figure C-1. Average winter loads by time slice for WV-VA-NC-SC PCAs in ReEDS

Source: NREL ReEDS Model.

Table C-2. Percent difference in demand levels for pairs of winter season time slices

Time Slice Pair	p95	p96	p97	p98	p99	p100	p116	p117	p118	P124 ²¹	Weighted Average % Difference
H12-H10	3%	3%	3%	1%	2%	3%	3%	1%	1%	91%	2%
H12-H11	7%	13%	8%	12%	10%	6%	6%	6%	6%	35%	10%
H12-H9	10%	7%	9%	10%	14%	14%	14%	12%	11%	43%	11%
H10-H11	10%	15%	10%	13%	9%	3%	3%	5%	5%	30%	10%
H10-H9	14%	10%	14%	13%	14%	13%	13%	12%	11%	33%	13%
H11-H9	2%	7%	2%	2%	4%	8%	9%	6%	6%	6%	22%

Source: NREL ReEDS Model.

For the slice with the lesser number of hours (H12—winter evening, 600 hours), the duration was decreased to 1 hour, and for the slice with the greater number of hours (H10-winter morning, 840 hours), the duration was increased to 1439 hours = 840 + 600 - 1. The determination of the actual new

²¹ Note that p124 is a very low demand PCA, with an average load of 68 MW compared to 346 and 1705 MW as the next lowest PCA average loads.

(peak) demand level to use for the new H12 one-hour slice is described below. The demand for the new H10 slice is now represented as the average load for all hours it includes.²² The new time slice designations are shown in Table C-3.

Table C-3. New ReEDS time slice definitions to represent a one-hour winter peak demand

Time Slice	Hours	Season	Time of Day
HI	736	summer	I0PM-6AM
H2	644	summer	6AM-IPM
H3	328	summer	IPM-5PM
H4	460	summer	5PM-10PM
H5	488	fall	I0PM-6AM
H6	427	fall	6AM-IPM
H7	244	fall	IPM-5PM
H8	305	fall	5PM-10PM
H9	960	winter	I0PM-6AM
H10	1439	winter	6AM-IPM & 5PM-I0PM
HII	480	winter	IPM-5PM
HI2	1	winter	I hour peak
HI3	736	spring	I0PM-6AM
HI4	644	spring	6AM-IPM
HI5	368	spring	IPM-5PM
HI6	460	spring	5PM-10PM
HI7	40	summer	superpeak
	8,760 (total)		

Step 3. Determine demand levels for winter peak time slice

Once we developed the new time slice designations, Synapse assigned actual demand levels to the single highest demand hour in the ReEDS winter season.

Focusing on the WV-VA-NC-SC region, we performed an analysis on the original ReEDS 2010 hourly demand dataset to determine the single hour across the four-state region that had the highest level of demand November 1 through February 28 (ReEDS winter designation).²³ Each state contains multiple

²³ ReEDS uses 2010 demand data as its reference year.



 $^{^{22}}$ The NREL ReEDS model developers supplied us with the underlying 8,760 hours data it used to develop the original 17 time slices, along with the scripts they used to summarize average loads. This enabled us to make a good estimate of the new average load for the H10 elongated time slice. Note: ReEDS runs on 8760 ABB (Ventyx) data; NREL was able to provide this data due to our existing license with ABB. Synapse received prior approval from ABB to receive this data.

transmission zones, ²⁴ so finding a coincident peak hour across each individually was not possible. ²⁵ However, when aggregated to the state level, a single hour could be determined. The hour we used to represent the winter peak demand was December 15 at 8:00AM. Table C-4 shows the new winter peak demand levels at this hour for each PCA in the four-state area of interest, and the original H12 average time slice demand level for comparison.

Table C-4. New winter peak demand level in the WV-VA-NC-SC area represented in ReEDS

State	PCA	I-HR Winter Peak (MW)	Original H12 Slice (MW)
SC	p95	4,988	3,369
SC	p96	10,488	6,723
NC	_P 97	12,769	8,681
NC	_P 98	12,696	8,371
VA	_P 99	16,069	11,654
VA	p100	483	394
WV	р116	2,842	2,339
WV	р117	2,393	1,908
VA	р118	3,342	2,667
VA	p124	46	46

We found the 8:00 AM hour on December 15 to be:

- The maximum winter demand hour for each individual state (VA, SC, NC), when demand for a state is defined as the sum of demands across all transmission zones in that state.
- The maximum winter demand hour for the four-state region as a whole (inclusive of WV), when demand for the four-state region as a whole is defined as the sum of demands across all transmission zones encompassed across all four states.
- Consistent with a "sensible" winter peak—a morning hour later in the winter.
- The maximum winter demand hour, when demand is defined as the sum of demands across all transmission zones in the four-state region, from the set of hours that contain at least one absolute winter peak for a single transmission zone in the four-state region. This hour is the actual single hour winter peak transmission zone 304 in VA.
- The same hour determined from a simple optimization that minimizes the sum of errors between the hour chosen and the other transmission regions' absolute winter peak loads. This essentially means that while the hour we chose to model as the winter peak demand does not

²⁴ Each PCA is made up of multiple transmission zones; the original ReEDS hourly demand data is organized by the underlying transmission zones.

²⁵ While many transmission zones within the four-state area had the *exact* same hour timestamp for their winter peak, some did not. This result is not unexpected given the system-level detail represented in the ReEDS model, and the reality of operations of the electric power system. While the system is highly interconnected, the highest demand in one location will not necessarily occur when demand is highest in another location.

represent the absolute winter peak across all transmission zones, it minimizes the disruption to the original dataset.

Note that while Synapse used the WV-VA-NC-SC region to identify the single hour to represent the peak demand, the ReEDS model ran on the broader Eastern Interconnect region for this WV-VA pipeline analysis. To ensure that a coincident winter peak was represented throughout the Eastern Interconnect, Synapse represented the winter peak demand using this same December 15 8:00AM hour for all PCAs represented in the ReEDS model.

Finally, other demand-related planning parameters were also adjusted as a result of shifting the duration of the time slices from the original model. Lk1, which defines the ratio between average annual load and peak load, and Lk2, which defines the level of variation in demand within a time slice (for the new H12 slice this value is 0 as there is no variation in the single-hour value), were re-calculated using the NREL-provided demand-by-PCA data and R script (ReEDS_load.R).

Step 4. Adjust renewables time slice-dependent capacity and other adjustment factors

ReEDS represents renewable Concentrated Solar Power, PV (central and distributed), and wind using capacity factors and capacity factor adjustments by time slice for each PCA. These factors are developed offline in other models, and pulled into ReEDS hardcoded in the input spreadsheet.

Because these values are time slice dependent, we needed to adjust the H10 winter morning time slice to account for the respective capacity factor for the hours of the H12 winter evening time slice it was "absorbing." The approach used to account for this was to take a weighted average of these factors based on the hours the new time slice H10 represents from each of the original time slices: 840 hours of the original H10 time slice and 599 hours of the original H12 time slice.

For example, the original H10 and H12 capacity factors (CF) for central station PV for p95, a PCA in South Carolina, were 0.25463 and 0.01908, respectively. The new H10 capacity factor is:

0.15658 = 0.25463*(840/1439) + 0.01908*(599/1439), or

New H10 CF = Original H12 CF * (# Hours in Original H12 Slice/# Hours in New H12 Slice) + Original H10 CF*(# Hours in Original H10 Slice/# Hours in New H10 Slice)

The original H12 capacity factor was left intact; using the average capacity factor was the best assumption without re-running the offline meteorological models to calculate the new one-hour capacity factor. Note that while the example above is pulled from a PCA in the four-state region of interest for the current project, for consistency this method was applied to all PCAs represented in ReEDS.

Step 5. Adjust Canadian import factors

ReEDS represents imports from Canada using annual imports, allocating them across the 17 time slices via a seasonal and diurnal assignment factor. Appropriately representing imports for the new set of time slices, where one slice consists of a single hour, required adjusting the fraction of imports that occur in the new winter peak H12 time slice. Imports for H12 were scaled from the original 600 hours to a single hour (1/600th), and the remaining fraction of imports was reassigned to the new elongated H10 slice. This original and new import factors are shown below (Table C-5).

Table C-5. Canadian import factors by time slice in ReEDS

Time Slice	Adjusted CA Import Factor	Original CA Import Factor
H1	0.0516	0.0516
H2	0.0954	0.0954
Н3	0.0448	0.0448
H4	0.0612	0.0612
H5	0.0398	0.0398
Н6	0.0299	0.0299
H7	0.0490	0.0490
Н8	0.0522	0.0522
H9	0.0498	0.0498
H10	0.1835	0.1050
H11	0.0629	0.0629
H12	0.0001	0.0786
H13	0.0521	0.0521
H14	0.1000	0.1000
H15	0.0634	0.0634
H16	0.0589	0.0589
H17	0.0055	0.0055
Sum	1.0000	1.0000

Model Validation: Comparison of Results

A comparison of results between ReEDS with the single-hour winter peak represented and the original time slice formulation shows excellent consistency in total generation, capacity, coal and gas usage, and emissions (all differences are well below 1 percent, see Table C-6). ²⁶ Figure C-2 and Figure C-3 show generation (MW) by time slice for the original and reformulated models, and Figure C-2 highlights the dramatically increased production from combined-cycle and combustion-turbine units in the new H12 time slice. The combination of the consistency in total generation, fuel usage, and emissions, with the

Results shown are based on "Eastern Interconnect-only" ReEDS runs. This is the setting this WV-VA pipeline analysis project uses for its ReEDS modeling.

higher production from natural gas units in the new H12 one-hour time slice shows that the peak winter demand is properly captured.

Table C-6. Comparison of results for key variables between the original ReEDS model and the version with a single-hour winter peak represented

	2010	2012	2014	2016	2018	2020
Capacity (GW)						_
Original ReEDS	737.33	755.14	740.61	728.29	738.67	739.52
1HR Winter Peak ReEDS	737.78	755.59	741.06	730.62	741.11	741.63
% Difference	0.061%	0.060%	0.061%	0.320%	0.330%	0.285%
Generation (TWh)						
Original ReEDS	2,937	2,838	2,849	2,941	3,010	3,041
1HR Winter Peak ReEDS	2,937	2,838	2,849	2,941	3,010	3,042
% Difference	-0.001%	-0.001%	-0.007%	-0.003%	0.000%	0.027%
Coal Usage						
Original ReEDS	15.62	12.54	13.33	12.98	13.56	13.42
1HR Winter Peak ReEDS	15.62	12.54	13.32	12.95	13.51	13.43
% Difference	0.000%	0.000%	-0.075%	-0.231%	-0.369%	0.075%
Gas Usage						
Original ReEDS	4.24	5.11	4.49	5.01	4.84	5.05
1HR Winter Peak ReEDS	4.25	5.11	4.49	4.98	4.87	5.02
% Difference	0.236%	0.000%	0.000%	-0.599%	0.620%	-0.594%
CO2 Emissions						
Original ReEDS	1.68	1.44	1.48	1.48	1.52	1.52
1HR Winter Peak ReEDS	1.68	1.44	1.48	1.47	1.52	1.52
% Difference	0.000%	0.000%	0.000%	-0.676%	0.000%	0.000%

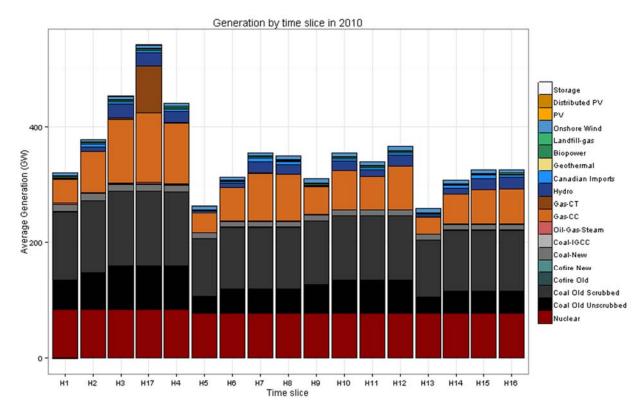
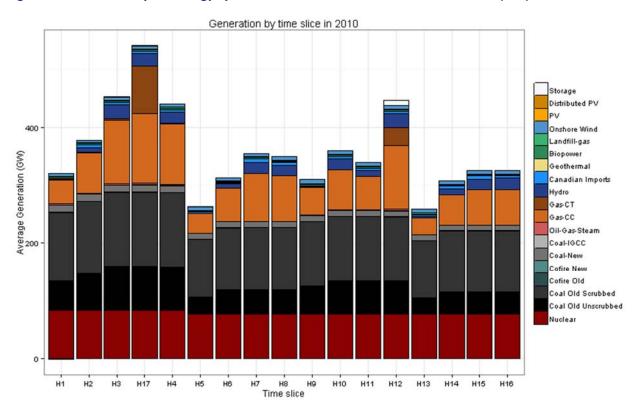


Figure C-2. Generation by technology by time slice—Original ReEDS formulation





PLANNING ZONING BOARD Tuesday, July 17, 2018

The Planning & Zoning Board held their regular meeting on Tuesday, July 17, 2018 in the Council Chambers of the Graham Municipal Building at 7:00 p.m. Board members present were Ricky Hall, Nate Perry, Justin Moody, Bonnie Blalock, Dean Ward, Eric Crissman and Michael Benesch. Staff members present were Nathan Page, Planning Director, Aaron Holland, Assistant City Manager, and Debbie Jolly Zoning & Inspection Technician. Chair Hall called the meeting to order, gave the Overview of the Board, general meeting rules and gave the invocation.

1. Approval of the June 19, 2018 meeting minutes. Michael Benesch made a motion for approval, second by Nate Perry. All voted in favor.

Mr. McVey was heard here instead of Old business since he was here to represent himself.

RZ1802 – Rezoning from R-7 to B-3 for property located at 204 E McAden Street. Application by Curt McVey. GPIN 8884223927. Curt McVey-415 W. Pine St, Graham NC 27253

Curt McVey- 415 W. Pine St, Graham NC 27253

Mr. McVey explained that his last tenant had passed away unexpected and he had not found a suitable tenant until now. After a brief discussion, Eric Crissman made a motion to approve RZ1802 from R-7 to B-3 Ricky Hall seconded. All voted Aye.

2. New Business

a. RZ1804 – Rezoning from R-18 to R-9 for property located on Rogers Rd. Application by Greg Garrett, Shugart Enterprises, LLC. GPIN 8872986536, 8873900485

Nathan Page provided a brief overview of the development project, as stated in the Staff Report.

A representative from Shugart was not present to make a presentation. Eric Crissman made a motion to table until the next meeting seconded by Bonnie Blalock. 6 voted Aye 1 opposed.

b. S1801 – Application for 178 units on approximately 106 acres. Application by Greg Garrett, Shugart Enterprises, LLC. GPIN 8872986536, 8873900485

Chris Foust 1851 S. Main St. Graham, NC 27253

David Michael 4101 Oak Cliff Rd Greensboro, NC

Both party spoke in favor of the sub division but wanted to make sure it would not block the other landowners that have adjoining properties. In addition, analysis that the roads could handle the additional traffic. Ricky Hall made a motion to table this since Shugart was not here Eric Crissman seconded. All voted Aye.

c. AM1805 – Application to amend the Table of Permitted Uses to permit Life Counseling in the B-1 downtown district. Application by William Hughes.

William Hughes 108 W Elm St Graham, NC 27253

Gene Smith 138 Canterbury Danville, VA 24541

Tom Boney 1240 Gemstone Ct Graham, NC 27253

Mr. Hughes spoke on behalf of the Life counseling center and explained what Mr. Smith does and that he didn't think this would be a problem when he rented the space to him. Mr. Smith addressed a few concerns that the board had. Mr. Boney addressed the board with some questions and concerns on why this was a problem. After a lengthy discussion, Ricky Hall made a motion to approve the following:

Section 10.16 Definitions

<u>Life Counseling</u> – Counselors working with individuals in individual settings and in group settings, for no more than 14 in a class, including sponsors at a time, providing counseling and education to assist people charged with and/or convicted of DWI offenses to recognize and create new life behaviors and coping mechanism[s] to avoid self destructive behaviors. The participants come in for sessions. This is not a residential program.

Section 10.135 Table of Permitted Uses

Use Type	R-18	R-15	R-12	R-9	R-7	C-R	R-MF	R-G	I-O	I-0-1	B-3	B-2	B-1	C-B	I-1 (Note 19)	I-2 (Note 19)	C-I	C-MXR	C-MXC	LUC
Life Counseling						С			X	С		X	X	С			C	C	C	2

Not having a second, Mr. Hall withdrew his motion. Mr. Crissman made a motion to approve the following:

<u>Life Counseling</u> – Counselors working with individual(s) or group(s), of not more than 14, providing counseling and education in a non-residential setting.

Section 10.135 Table of Permitted Uses

Use Type	R-18	R-15	R-12	R-9	R-7	R-C-R	R-MF	R-G	I-0	I-0-2	E-8	R-2	B-1	G-B	I-1 (Note 19)	I-2 (Note 19)	I-O	C-MXR	C-MXC	TAC
Life Counseling						C			X	С		X	X	С			C	C	C	2

Ricky Hall seconded. Vote was 3-4 opposed.

Mr. Hall made a motion to table this until the next meeting and ask the staff to get more information. Mr. Ward seconded. All voted Aye.

3. Old Business

a. AM1803 -- Entrance Overlays. Discussion by Planning Board with regards to future potential regulations within the City's gateways. Nathan explain we did not have examples of others city overlay at this time. The board requested that he work on getting some for the next meeting. Mr. Hall

made a motion to table this until stall could get more information Dean Ward seconded. All voted Aye.

b. Discussion Regarding Used Tire Ordinance from Burlington. Nathan Page presented the Burlington Tire Ordinance the board had a brief discussion. Michael Benesch made a recommendation to forward to City Council with recommended changes to the 2035 Comprehensive Plan, Nate Perry seconded 6-1 vote, with Ricky Hall opposed.

Ricky Hall made a motion to adjourn. Seconded by Dean Ward. All vote Aye.

No further business the meeting was adjourned.

Respectfully Submitted, Debbie Jolly



Rogers Shugart (RZ1804)

Type of Request: Rezoning

Meeting Dates

Planning Board on July 17 and August 21, 2018 City Council on August 7 and September 4, 2018

Contact Information

Greg Garrett, Shugart Enterprises, LLC 221 Jamestown Rd Winston-Salem NC 27104 336-231-6764; greg@shugarthomes.net

Summary

This item was tabled by the Planning Board and should therefore be tabled by the City Council until their 9/4/2018 meeting. The item is on City Council's agenda as a result of public notice which was published in the Alamance News on 7/19/18 and 7/26/18.

This is a request to rezone the subject property from R-18 to R-9. The property is currently vacant, wooded, and under cultivation. This property was crossed by the proposed Southern Loop, which has subsequently been removed.

Location

Rogers Rd

GPIN: 8872986536, 8873900485

Current Zoning

Residential (low density) (R-18)

Proposed Zoning

Residential (high density) (R-9)

Overlay District

none

Surrounding Zoning

R-18

Surrounding Land Uses

Single Family and Vacant

Size

Approximately 106 acres

Public Water & Sewer

Yes

Floodplain

Yes

Staff Recommendation

Approval

Conformity to the *Graham 2035 Comprehensive Plan* (GCP) and Other Adopted Plans

Applicable Policies;

• 3.3.2 Focused Development. In order to maintain Graham's affordability and promote growth, the city will facilitate smart growth development by promoting infill development and focused, walkable, and mixed use built environments. This development utilizes the land which is served by city water and sewer more efficiently than maintaining the existing R-18 zoning. Additionally, the Suburban Residential neighborhood type density recommendations are greater than that which is permitted by R-18 zoning.

Applicable Strategies;

• 4.3.1 Land Use Patterns. Promote development of efficient land use patterns to allow continued quality and efficiency of water systems. Discourage the extension of water service into areas that are not most suitable for development. The site would connecting to existing city infrastructure, and would facilitate later development of existing adjacent property.

Planning Type Neighborhood

Development Type

Suburban Residential

For single family residential, townhouses, duplexes, accessory dwelling units, and small scale multi-family dwelling of twelve units or less.

Buildings should be located near the front of the property line, oriented towards the street, and include front porches and other private outdoor spaces.

Recess garages behind the front of buildings to avoid streetscapes dominated by garage doors.

Density of 3 to 6 DU/acre

Staff Recommendation

Based on the *Graham 2035 Comprehensive Plan* and the *City of Graham Development Ordinance*, staff recommends **approval** of the rezoning. The following supports this recommendation:

• Rezoning the property would be in consistence with the Suburban Residential type and furthers the policies and strategies put forth by the *Graham 2035 Comprehensive Plan*, such as connected, efficient development.



Application for **REZONING** or CONDITIONAL REZONING TY OF GRAHAM www.cityofgraham.com

RECEIVED

P.O. Drawer 357

201 South Main Street

Graham, NC 27253 (336) 570-6705

This application is for both general district rezonings and conditional rezonings. Applications are due on the 25th of each month. Applicants are encouraged to consult with the City of Graham Development Ordinances and the City Planner.

Site	Proposed Rezoning or Conditional Rezoning
Street Address:	Proposed Zoning District(s): □ R-7 □ R-9 □ R-12 □ R-15 □ R-18 □ R-MF □ R-G □ C-R □ C-MXR □ B-1 □ B-2 □ B-3 □ C-B □ C-MXC □ O-I □ C-O-I □ I-1 □ I-2 □ C-I
R-MF R-G C-R C-MXR B-1 B-2 B-3 C-B C-MXC O-I C-O-I I-1 I-2 C-I Overlay District, if applicable: Historic S Main St/Hwy 87 E Harden St/Hwy 54 Current Use: Angulare	Describe the purpose of this rezoning request. For Conditional Rezonings, also specify the actual use(s) intended for the property (from Sec. 10.135 Table of Permitted Uses) along with other descriptive or pertinent information, such as number of dwelling units, type of multifamily development, square footage and number of buildings:
Property Owner: Dixie W. Rodgers, Shoffner Land & Mailing Address: 1526 Rodgers RD Tinber, LL	This recorning request is designed to help prepare this land for residential development. This recorning request is designed to help prepare this land for less less less less less less less les
Applicant Property Owner Other Swaak Enterprises IIC Application for Conditional Rezoning may only be initiated by the owner of a legal interest in all affected property, any person having an interest in the property by reason of written contract with owner, or an agent authorized in writing to act on the owner's behalf. If the applicant for Conditional Rezoning is other than the Property Owner, documentation in compliance with the preceding statement must be provided in order for this application to be complete. Name: Swaak Energises IIC	
Mailing Address: 221 Jones from RD City, State, Zip: Winston-Salem, NC 27104 Phone # (336) 231 - 6764 Email: grea & shvaar homes net I have completed this application truthfully and to the best of my ability.	For Conditional Rezonings, this application must be accompanied by a Preliminary Site Plan and supporting information specifying the actual use(s) and any rules, regulations or conditions that, in addition to predetermined ordinance requirements, will govern the development and use of the property. Site Plan Review Application must be attached to this application for Conditional Rezonings



City Council Decision & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. When adopting or rejecting any zoning amendment, the City Council shall also approve a statement describing whether its action is consistent with the "The Graham 2035 Comprehensive Plan" and briefly explaining why the City Council considers the action taken to be reasonable and in the public interest. The Planning Board shall provide a written recommendation to the City Council, but a comment by the Planning Board that a proposed amendment is inconsistent with the "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

Rogers Road (RZ1804)

Type of Request
Rezoning

Meeting Dates

Planning Board on July 17, 2018 City Council on August 7, 2018

Choose one
I move that the application be APPROVED .
I move that the application be DENIED .
Choose one
The application is consistent with <i>The Graham 2035 Comprehensive Plan</i> .
The application is not fully consistent with <i>The Graham 2035 Comprehensive Plan</i> .
State reasons
This action is reasonable and in the public interest for the following reasons:
This report reflects the decision of the City Council, this the 7 th day of August, 2018.
Attest:
Gerald R. Peterman, Mayor
Darcy L. Sperry, City Clerk



McAden Business (RZ1802)

Type of Request: Rezoning

Meeting Dates

Planning Board on June 19, 2018 City Council on August 7, 2018

Contact Information

Curt McVey, of McVey Realty 104 E Harden Street, Graham NC 27253 336-380-4891, curtmcvey@earthlink.net

Summary

This property is surrounded by residential properties. Tax records indicate that the structure was built in 1950. This request is to rezone the property to B-3, to allow the current structure to be utilized as a professional office. The prior use as an office was no longer permitted to continue as a nonconformity due the facility being vacant for greater than 180 days.



Location

204 E McAden St

GPIN: 8884223927

Current Zoning

High Density Residential (R-7)

Proposed Zoning

Neighborhood Business (B-3)

Overlay District

N/A

Surrounding Zoning

High Density Residential, R-7

Surrounding Land Uses

Residential

Size

0.12 acres

Public Water & Sewer

Connected

Floodplain

No

Staff Recommendation

Approval

Conformity to the *Graham 2035 Comprehensive Plan* (GCP) and Other Adopted Plans

Planning District: Downtown Residential

Applicable Policies;

• **2.2.1 Focused Development.** In order to maintain Graham's affordability and promote growth, the City will facilitate smart growth development by promoting infill development and focused, walkable, and mixed use built environments. *Permitting a small office in this location would allow the continuation of a mixed use neighborhood.*

Applicable Strategies;

- 2.3.2 Innovative spaces, spaces of innovation. Graham promotes the development of flex space, live-work units, and adaptive structures for office, retail, and light industry. Allowing this rezoning would permit the reuse of an existing commercial structure.
- **5.2.1 Diverse Neighborhoods.** Encourage a mix of housing types within Graham, including detached, duplex, multifamily, townhomes, and live-work units. *The property owner owns both this parcel, as well as the detached residence nextdoor.*

Development Type

Downtown Residential

3 to 6 Dwelling Units Per Acre

Principal Uses: Predominately detached single-family homes; new neighborhoods may include duplexes.

Supporting Uses: Places of worship, daycares, park facilities, schools, civic spaces, designated neighborhood centers may include neighborhood-oriented commercial, small professional offices, live-work units, and home occupations provided they do not generate excessive traffic and parking.

Staff Recommendation

Based on The Graham 2035 Comprehensive Plan, staff recommends **approval** of the rezoning. The following supports this recommendation:

• Rezoning of the site will permit the property to be used as it was constructed, prior to the current zoning regulations.

McVey Realty & Appraisals

104 E Harden Street Graham, NC 27253 Web: mcveyappraisals.com Office: (336)229-6777 Cell: (336)380-4891

Email: curtmcvey@earthlink.net

Application for REZONING or ITIONAL REZONING

P.O. Drawer 357 201 South Main Street Graham, NC 27253 (336) 570-6705 Fax (336) 570-6703 www.cityofgraham.com

This application is for both general district rezonings and conditional rezonings. Applications are due on the 25th of each month. Applicants are encouraged to consult with the *City of Graham Development Ordinances* and the City Planner.

Site	Proposed Rezoning or Conditional Rezoning
Street Address: 204 E Mc Aden 5+ Tax Map#: 171-692-18 GPIN: 8884223927 Current Zoning District(s): R-7	Proposed Zoning District(s): R-7 R-9 R-9 R-12 R-15 R-18 R-MF R-G C-R C-MXR B-1 B-2 B-3 C-B C-MXC O-1 C-O-1 I-1 I-2 C-I Describe the purpose of this rezoning request. For Conditional Rezonings, also specify the actual use(s) intended for the property (from Sec. 10.135 Table of Permitted Uses) along with other descriptive or pertinent information, such as number of dwelling units, type of multifamily development, square footage and number of buildings: Building Previously Used as professional office Space under Non-conforming Crandfolder under Non-conforming Krandfolder use. New tenant ready to occupy after being Vacent for over a year. New tenant use is for a tenant use is for a forfice.
City, State, Zip: Graham, NC 27253 Phone # (336) 380 - 4891 Email: Curt McVey @ earthlink, net I have completed this application truthfully and to the best of my ability. 5/18/18	For Conditional Rezonings, this application must be accompanied by a Preliminary Site Plan and supporting information specifying the actual use(s) and any rules, regulations or conditions that, in addition to predetermined ordinance requirements, will govern the development and use of the property. Site Plan Review Application must be attached to this application for Conditional Rezonings
Signature of Applicant Date	Office Use Only, DEVID# RZ1902



PLANNING BOARD

Recommendation & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. The Planning Board shall advise and comment on whether the proposed amendment is consistent with "The Graham 2035 Comprehensive Plan" and any other officially adopted plan that is applicable. The Planning Board shall provide a written recommendation to the City Council that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

204 E McAden St (RZ1802)

Type of Request

Rezoning

Meeting Dates

Planning Board on June 19, 2018 and July 17, 2018 City Council on August 7, 2018

move to recommend APPROVAL of the application as presented.
I move to recommend DENIAL.
The application is consistent with The Graham 2035 Comprehensive Plan.
The application is not fully consistent with <i>The Graham 2035 Comprehensive Plan.</i>
The action is reasonable and in the public interest for the following reasons:
Nice to see this use in the neighborhood.
This report reflects the recommendation of the Planning Board, this the 17 th day of July, 2018.
Attest:
Ricky Hall, Planning Board Chairman
Debbie (1009)
Debbie Jolly, Secretary U



City Council Decision & Statement of Consistency

Per NCGS 160A-383, zoning regulations shall be made in accordance with an adopted comprehensive plan and any other officially adopted plan that is applicable. When adopting or rejecting any zoning amendment, the City Council shall also approve a statement describing whether its action is consistent with the "The Graham 2035 Comprehensive Plan" and briefly explaining why the City Council considers the action taken to be reasonable and in the public interest. The Planning Board shall provide a written recommendation to the City Council, but a comment by the Planning Board that a proposed amendment is inconsistent with the "The Graham 2035 Comprehensive Plan" shall not preclude consideration or approval of the proposed amendment by the City Council.

204 McAden St (RZ1802)

Type of Request

Rezoning

Meeting Dates

Planning Board on June 19, 2018 and July 17, 2018 City Council on August 7, 2018

Choose one
☐ I move that the application be APPROVED .
I move that the application be DENIED .
Choose one
The application is consistent with <i>The Graham 2035 Comprehensive Plan</i> .
The application is not fully consistent with <i>The Graham 2035 Comprehensive Plan</i> .
State reasons
This action is reasonable and in the public interest for the following reasons:
This report reflects the decision of the City Council, this the 7 th day of August, 2018.
Attest:
Gerald R. Peterman, Mayor
Darcy L. Sperry, City Clerk



SUBJECT:	USED TIRE ORDINANCE	
PREPARED BY:	NATHAN PAGE, PLANNING DIRECTOR	

REQUESTED ACTION:

Receive information.

BACKGROUND/SUMMARY:

The City of Burlington has been less successful than the City of Graham in enforcing their nusiance ordinance. As such, they have added clarity to their regulations regarding used tires stored outside. In Graham, used tires are regulated under our nusiance ordinances, which are housed in the Code of Ordinances. If the current method of regulation becomes unsuccessful, the City of Graham should consider strengthening their ordinances, and may choose to use Burlington's new ordinance as a model.

FISCAL IMPACT:

None.

STAFF RECOMMENDATION:

None.

SUGGESTED MOTION(S):

N/A



PROPOSED AMENDMENT TO SECTION 32.9 AND SECTION 32.10 OF THE CITY OF BURLINGTON ZONING ORDINANCE TEXT PERTAINING TO OUTDOOR STORAGE, DISPLAY OR SALES OF NEW AND USED TIRES

Add Section 32.10.UU to read as follows:

UU. Outdoor storage, display or sales of new or used tires.

- 1) Where permitted, tires stored outside must comply with the following standards to minimize their visual impact and reduce their potential as a public nuisance and fire hazard:
- (a) Tires must be stored in a completely fenced in area concealed from view from a public street and from all adjacent property through screening. Examples of acceptable screening shall include: 1) Solid brick, block (excluding cinder block) or wooden fencing; 2) chain link fence with slats or mesh fabric specifically designed for use with chain link fencing that meet or exceed an eighty (80) percent obscurity standard. All fencing shall be a minimum of six (6) feet in height.
- (b) For lots greater than one acre, the outdoor tire storage area shall not exceed ten (10) percent of the entire area used for the business.
- (c) Tires shall not be stored within any required yard adjacent to a street.
- (d) The placement of tires stored outside shall be maintained in accordance with this ordinance and the provisions of the North Carolina Fire Code, Chapter 3, Section 315. The more restrictive provisions shall prevail.
- (2) Outdoor display of tires shall be permitted provided they are located within ten (10) feet of the principal structure on the premises and not within required setbacks or buffers. A maximum of twenty four (24) tires may be displayed and they must be placed in racks in an upright position.
- (3) The requirements of this section shall be applicable to all existing and future uses involving the outdoor storage, display and sales of tires. In the event such use existing on the date of the adoption of this ordinance, is or becomes nonconforming by virtue of the adoption of this ordinance, it shall be brought into compliance or removed within six (6) months after the date of adoption.



STAFF REPORT

SUBJECT:	OLD FIELDS/BACK CREEK OUTFALL	
PREPARED BY:	FRANKIE MANESS, CITY MANAGER	

REQUESTED ACTION:

Approve Resolution Authorizing the City Manager to enter into a Development Agreement with KG Plaza, LLC for the construction of a portion of the Back Creek sewer outfall.

BACKGROUND/SUMMARY:

The Old Fields Subdivision along Cherry Lane has an approved development plan that includes 755 dwelling units and various pods for nonresidential uses. To date, less than 50 of the dwelling units are constructed and further development is restricted due to the lack of collection system capacity. Current development within Old Fields is served by a small lift station that was originally permitted as a temporary solution for the initial phases of development only.

Since the subdivision's inception, a permanent solution for sewer was stipulated to serve the subdivision and other lands in the form of a gravity outfall line along Back Creek. This solution prompted the City to construct the Cherry Lane Regional Pump Station to serve Old Fields and other properties; all the while affording the City the ability to abandon other lift stations. The Developer (KG Plaza, LLC) is proposing to resume development of Old Fields by subdividing additional lands. An agreement is stipulated to construct an outfall to serve the balance of the property and other properties as a permanent solution.

FISCAL IMPACT:

The proposed agreement stipulates a cost to the City of approximately 1/3 of the estimated cost for the outfall, or about \$400,000. The sum is also the approximate difference between the cost for the developer to install the minimum sewer to serve the project and the cost to install an outfall to serve additional lands and enable the abandonment of the temporary lift station as well as the future abandonment of Back Creek #1 Lift Station.

STAFF RECOMMENDATION:

Approval. The City has long-anticipated participation in the construction of an outfall to afford additional development east of Back Creek and to reduce our collection system's dependence on lift stations. While \$400,000 seems like a sizable contribution, it pales in comparison to the cost of any city-initiated infrastructure combined with required work on existing lift stations. The outfall would also afford other lift stations capacity relief by diverting flow to the Cherry Lane Regional Pump Station.

SUGGESTED MOTION(S):

I move we Approve the Resolution Authorizing the City Manager to enter into a Development Agreement with KG Plaza, LLC for the construction of a portion of the Back Creek sewer outfall.

RESOLUTION AUTHORIZING THE CITY MANAGER TO ENTER INTO A DEVELOPMENT AGREEMENT WITH KG PLAZA, LLC FOR THE CONSTRUCTION OF A PORTION OF THE BACK CREEK SEWER OUTFALL

WHEREAS, On November 14, 2011, the City approved a revised Master Development plan for Old Fields subdivision, containing 755 dwelling units that specified the installation of a permanent gravity sewer solution to serve Old Fields that could be extended in the future to eliminate the City's Back Creek No.1 sanitary sewer lift station; and

WHEREAS, The City constructed the Cherry Lane Regional Pump Station in 2006 to accept and convey the waste water from Old Fields and other lands directly to the City of Graham Waste Water Treatment Plant; and

WHEREAS, At the time of the approvals and platting of the currently developed property, improvement permits were granted to certain lots. The approval of these lots were based on sewer service being provided by an on-site "temporary" sanitary sewer lift station installed by the previous owner; and

WHEREAS, This Temporary Station is now operated and maintained by the City of Graham and discharges to Back Creek No. 1 Lift Station. The Temporary Station is limited in capacity to the property that is currently developed and platted and Back Creek No.1 is limited to receiving sewer flow from 200 total lots in the Old Fields Subdivision; and

WHEREAS, In order for the temporary station to receive a total of 200 lots from Old Fields Subdivision, the Temporary Station would require upgrading at an estimated cost of approximately \$300,000; and

WHEREAS, In order to receive any additional sewer flow from more than 200 lots in the Old Fields Subdivision, an upgrade to the Temporary Station with an estimated cost of approximately \$850,000 would be required to divert the sewer flow to Cherry Lane Regional Pump Station. In addition, the Temporary Station would become a permanent pump station maintained by the City and the ability to remove Back Creek No. 1 from service would not be possible as part of the Old Fields Subdivision; and

WHEREAS, Spending public or private dollars for the upgrading of the Temporary Station merely postpones the inevitable necessity for a permanent solution to the gravity flow of sewer services from the Old Fields Subdivision; and

WHEREAS, KG Plaza, LLC, owner of Old Fields, desires to enter into an agreement to reach a permanent solution for the complete gravity flow of the sewer to the Cherry Lane Pump Station, which eliminates the Temporary Station and affords the City the opportunity to eliminate Back Creek No. 1 and expand sewer service to additional lands.

NOW THEREFORE BE IT RESOLVED, BY THE CITY COUNCIL OF THE CITY OF GRAHAM THAT:

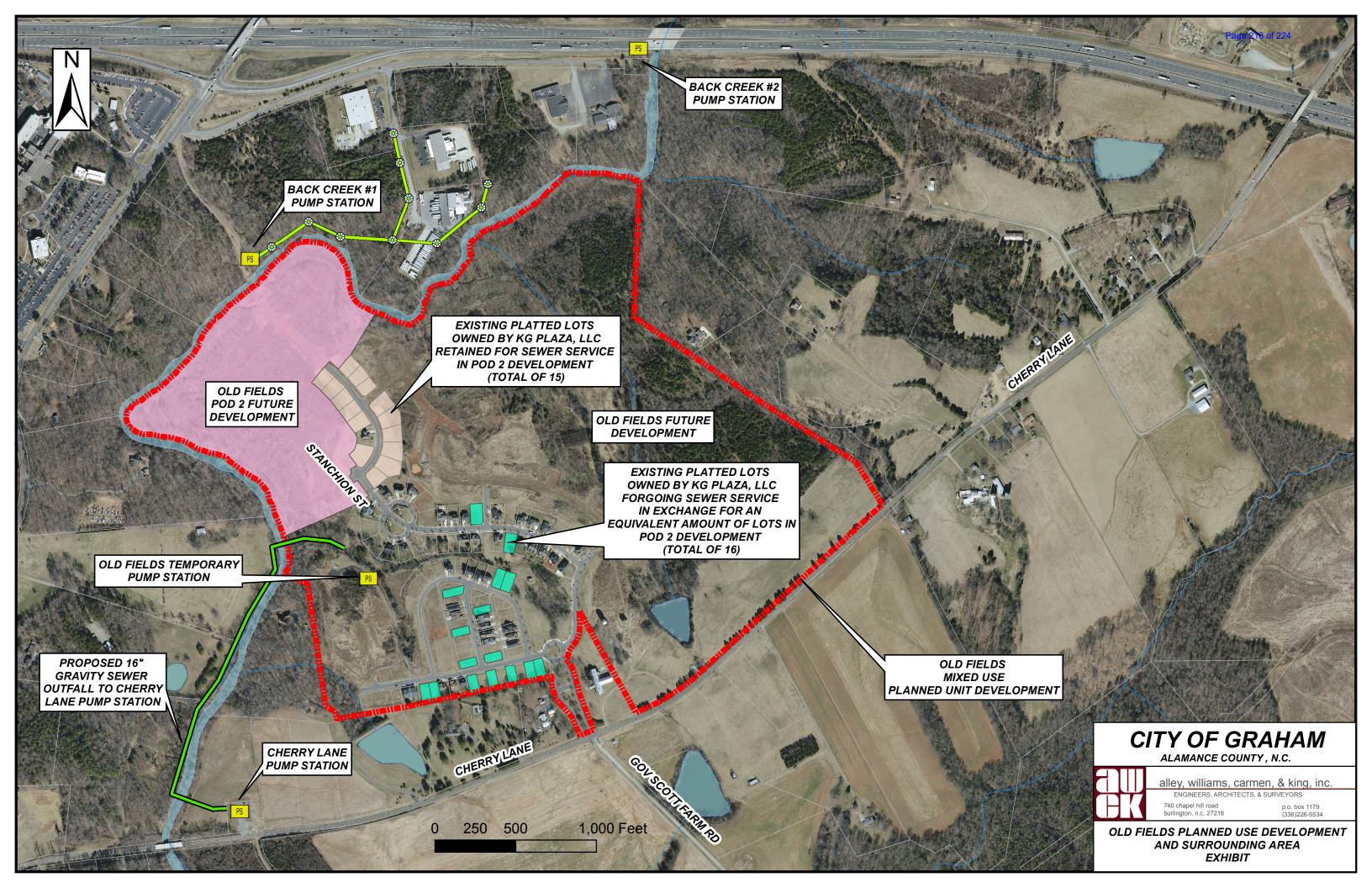
The City Manager is authorized to enter into a development agreement with KG Plaza, LLC for the construction of a portion of the Back Creek sewer outfall. The development agreement shall include assurances that:

- 1. KG Plaza, LLC shall provide a cash bond, letter of credit or other form of security in the amount of \$800,000 to the benefit of the City to Graham prior to the design and construction of a gravity sewer outfall from Cherry Lane Sewer Lift Station to the Temporary Station (eliminating the Temporary Station);
- 2. KG Plaza, LLC shall design and construct additional phased on-site 8" public sewer improvements to allow for future connection by adjacent upstream property with an approximate elevation of 530 feet with 150,000 gallons per day capacity and serving approximately 150 acres of new development;
- 3. KG Plaza, LLC shall provide, without charge, the permanent and temporary construction easements within the Old Fields Subdivision, for the outfall extension that would eliminate Back Creek No. 1 and agree to provide these permanent and temporary easements without charge for future connection to the upstream property;
- 4. KG Plaza, LLC shall be responsible for 2/3rds (two-thirds) of the total cost of the gravity sewer outfall, up to \$800,000.
- 5. KG Plaza, LLC shall reimburse the City for 2/3rds (two-thirds) of the cost of the gravity sewer outfall project in progress as requested by the City, up to \$800,000 and occurring at no greater frequency than monthly.

BE IT FURTHER RESOLVED THAT:

- 1. The City of Graham agrees to design and construct to Graham and State of North Carolina standards the gravity sewer outfall from Cherry Lane Sewer Lift Station to the Temporary Station (eliminating the Temporary Station).
- 2. The City of Graham agrees to acquire the necessary permanent and temporary construction easements for all of the portions of the gravity sewer outfall that do not lie within the property boundaries of Old Fields Subdivision.
- 3. The City of Graham agrees to bill and provide KG Plaza, LLC with itemized invoices for design and construction in progress on a monthly basis.
- 4. The City of Graham agrees to release from a letter of credit or other form of security an amount equal to any payment received from KG Plaza, LLC during the project.
- 5. Upon completion of construction of the gravity sewer outfall solution, all sewer facilities lying within the boundary of Old Fields Subdivision, will be transferred by separate document, recordable in the Register of Deeds, become the property of the City for operation and maintenance.

Adopted this the 7th day of August, 2018.	
	Jerry Peterman, Mayor
ATTEST:	



STATE OF NORTH CAROLINA

COUNTY OF ALAMANCE

DEVELOPMENT PERMIT AMENDMENT AGREEMENT

This DEVELOPME	NT PERMIT AMENDMENT AGREEMENT, made and entered into this
day of	, 2018 by and between KG PLAZA, LLC, A North Carolina Limited
Liability Corporation,	(hereinafter sometimes referred to as "Developer-Plaza"), and the CITY
OF GRAHAM, an inc	corporated North Carolina City (hereinafter sometimes also referred to as
"Graham" or "the Cit	y".)

RECITALS:

- 1. On November 14, 2011, the City approved a revised Master Development plan for Old Fields subdivision (hereinafter sometimes also referred to as Old Fields), containing 755 dwelling units.
- 2. The revised Master Development Plan specified the installation of a permanent gravity sewer solution to serve Old Fields that could be extended in the future to eliminate the City's Back Creek No.1 sanitary sewer lift station (hereinafter called Back Creek No. 1).
- 3. The City constructed the Cherry Lane Regional Pump Station in 2006 to accept and convey the waste water from Old Fields directly to the City of Graham Waste Water Treatment Plant.
- 4. At the time of the former approvals, the subdivision was owned by a previous owner, and not Developer-Plaza.
- 5. Old Fields consists of approximately 209 acres of real property at the intersection of Cherry Lane and Governor Scott Farm Road, much of which is undeveloped.
- 6. At the time of the approvals and platting of the currently developed property, improvement permits were granted to certain lots.
- 7. The approval of these lots were based on sewer service being provided by an on-site "temporary" sanitary sewer lift station (hereinafter called the Temporary Station) installed by the previous owner.
- 8. This Temporary Station is now operated and maintained by Graham.
- 9. This Temporary Station discharges to Back Creek No. 1.
- 10. The Temporary Station is limited in capacity to the property that is currently developed and platted.
- 11. Back Creek No.1 is limited to receiving sewer flow from 200 total lots in the Old Fields Subdivision.
- 12. In order for the temporary station to receive a total of 200 lots from Old Fields Subdivision, the Temporary Station would require upgrading at an estimated cost of approximately \$300,000.
- 13. In order to receive any additional sewer flow from more than 200 lots in the Old Fields Subdivision, an upgrade to the Temporary Station with an estimated cost of approximately \$850,000 would be required to divert the sewer flow to Cherry Lane Regional Pump Station. In addition, the Temporary Station would become a permanent pump station maintained by the City and the ability to remove Back Creek No. 1 from service would not be possible as part of the Old Fields Subdivision.

- 14. Spending public or private dollars for the upgrading of the Temporary Station merely postpones the inevitable necessity for a permanent solution to the gravity flow of sewer services to the Old Fields Subdivision.
- 15. Developer-Plaza desires to enter into an agreement that provides for some temporary development of undeveloped property and reach a permanent solution for the complete gravity flow of the sewer to the Cherry Lane Pump Station, which eliminates the Temporary Station and affords the City the opportunity to eliminate Back Creek No. 1.
- 16. Exhibit A to this Agreement is attached hereto and incorporated by reference into this agreement.

NOW THEREFORE, in consideration of the mutual provisions and covenants herein, and other good and valuable consideration which parties hereby acknowledge, Developer-Plaza and Graham agree as follows:

I. <u>DUTIES OF DEVELOPER-PLAZA:</u>

- 1. The Developer-Plaza shall design and construct to Graham and State of North Carolina standards the gravity sewer flow outfall from Cherry Lane Sewer Lift Station to the Temporary Station (eliminating the Temporary Station). Also, the outfall shall be designed and installed at an elevation to eliminate Back Creek No. 1.
- 2. The Developer-Plaza shall design and construct additional phased on-site 8" public sewer improvements to allow for future connection by adjacent upstream property with an approximate elevation of 530 feet with 150,000 gallons per day capacity and serving approximately 150 acres of new development (residential or otherwise, approved by the City of Graham).
- 3. The Developer-Plaza shall provide, without charge, the permanent and temporary construction easements within the Old Fields Subdivision, for the outfall extension that would eliminate Back Creek No. 1 and agree to provide these permanent and temporary easements without charge for future connection to the upstream property. These easements shall be unencumbered by future Old Fields lots, and lie within the public travel way or street locations, and/or common area open space.
- **4.** Developer-Plaza will pay all of the costs for the construction of approximately of the gravity flow sewer outfall along Back Creek, as shown on Exhibit A, attached to this agreement. This cost is estimated to be \$1,250,000.00.
- **5.** The Developer-Plaza shall be responsible for payment of and obtaining all permits and approvals from any source, related to the construction, planning, and installation of the gravity sewer flow outfall solution.

II. DUTIES OF GRAHAM:

1. Graham will acquire the necessary permanent and temporary construction easements for all of the portions of the gravity sewer flow outfall that do not lie within the property boundaries of Old Fields Subdivision.

- 2. Graham will participate in the construction costs of the gravity sewer flow outfall solution up to one third of the total costs.
- 3. Graham will reimburse for construction in progress upon inspection and recommendation of the City's Engineer.
- 4. Upon completion of construction of the gravity sewer flow outfall solution and acceptance by the City, all sewer facilities lying within the boundary of Old Fields Subdivision, will be transferred by separate document, recordable in the Register of Deeds, become the property of the City for operation and maintenance.

III. <u>NOTICES</u>:

1. Any notices required by this Agreement shall be mailed to the following persons:

If to Graham:

City of Graham Attn: Frankie Maness P.O. Drawer 357 Graham, NC 27253

With Copy to:

G. Keith Whited, City Attorney PO Box 357 Graham, North Carolina 27253

If to Developer-Plaza:

Jack J. Carlisle, Managing Member 109 Willesden Drive Cary, North Carolina 27513

With copy to:

Lisa Beamon, Managing Member 8640 River Road Wilmington, North Carolina

IV. ASSIGNMENT:

The Parties represent and warrant that no person other than the signatories hereto had or has any interest in the matters referred to in this AGREEMENT, that the Parties have the sole right and exclusive authority to execute this AGREEMENT, and that the Parties have not sold, assigned, transferred, conveyed, or otherwise disposed of any claim, demand or legal right that is the subject of this AGREEMENT. Further, the parties agree that the contract

rights hereunder may not be assigned by either party nor the duties hereunder delegated to any third party without the express written consent of the other.

V. **GOVERNING LAW AND JURISDICTION**:

This AGREEMENT shall be governed and conformed in accordance with the laws of the State of North Carolina. In the event CITY OF GRAHAM or KG PLAZA, LLC breaches any provision of this AGREEMENT, CITY OF GRAHAM and KG PLAZA, LLC affirm that either may institute an action to specifically enforce any term or terms of this AGREEMENT.

VI. **HEADINGS**:

The headings of the provisions herein are intended for convenient reference only, and the same shall not be, nor be deemed to be, interpretative of the contents of such provision.

VII. MODIFICATION OF AGREEMENT:

This AGREEMENT may not be amended, revoked, changed, or modified in any way, except in writing executed by all Parties. No waiver of any provision of this AGREEMENT will be valid unless it is in writing and signed by the party against whom such waiver is charged. The parties acknowledge that only an authorized representative of Graham has the authority to modify this AGREEMENT on behalf of Graham.

VIII. INTERPRETATION:

The language of all parts of this AGREEMENT shall in all cases be construed as a whole, according to its fair meaning, and not strictly for or against any of the Parties. This AGREEMENT has been negotiated by and between the parties and shall not be construed against the "drafter" of the AGREEMENT.

IX. **SEVERABILITY:**

The parties explicitly acknowledge and agree that the provisions of this AGREEMENT are both reasonable and enforceable. However, if any portion or provision of this AGREEMENT (including, without implication of limitation, any portion or provision of any section of this AGREEMENT) is determined to be illegal, invalid, or unenforceable by any court of competent jurisdiction and cannot be modified to be legal, valid, or enforceable, the remainder of this AGREEMENT shall not be affected by such determination and shall be valid and enforceable to the fullest extent permitted by law, and said illegal, invalid, or unenforceable portion or provision shall be deemed not to be a part of this AGREEMENT.

X. **BINDING NATURE OF AGREEMENT:**

This AGREEMENT shall be binding upon each of the Parties and upon their respective heirs, administrators, representatives, executors, successors, and assigns, and shall inure to the

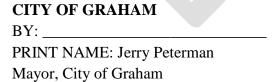
benefit of each party and to their respective heirs, administrators, representatives, executors, successors, and assigns.

XI. <u>ENTIRE AGREEMENT:</u>

This AGREEMENT sets forth the entire AGREEMENT between the parties hereto, and fully supersedes any prior obligation of CITY OF GRAHAM to KG PLAZA, LLC, as owner of the real property known as Old Fields Subdivision.

(Signatures Appear on Next Page)

IN WITHNESS WHEREOF, the parties hereto have made and executed this agreement as of the day and year first above written.



This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Sandra King, Graham Finance Officer	Date
Approved as to Legal Form and Sufficiency	
Keith Whited, Graham City Attorney	
KG PLAZA, LLC	
BY:	
PRINT NAME: Jack J. Carlisle, Managing Memb	er