



# KRAMER RAYSON LLP

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R.R. KRAMER (1888-1966)  
E.H. RAYSON (1923-2017)

July 27, 2026

Planning Staff  
Planning Commissioners

*Via Submission on Case Website  
in Public Comment Section*

**Re: Vulcan – Dixie Lee Quarry Extension Project  
Knox Planning Case # 7-B-26-UR**

Planning Staff and Planning Commissioners,

### THE ORIGINAL APPLICATION

Since the submission on **May 26, 2026** of Vulcan's initial Use on Review Application ("Application") with Knox Planning, Vulcan has engaged in broad community outreach about its project plans. This outreach has consisted of:

a. Mailing letters to approximately 160 neighboring property owners giving notice of, explaining its Application, and inviting them to a Community Open House on **June 11, 2026** where Vulcan representatives could answer their questions and hear their concerns. [A copy of the letter is attached to Vulcan's letter to Knox Planning dated July 17, 2026.]

b. The Community Open House was conducted on June 11, 2026 by 15+ Vulcan representatives and was attended by sixty (60) members of the community, three (3) County Commissioners and representatives of Knox County. [Information was presented on boards together with explanations and illustrations relevant to the Quarry's operations, copies of which are attached to Vulcan's letter to Knox Planning dated July 17, 2026.]

c. Many individual engagements outside of the Community Open House by Vulcan representatives with members of the community and other stakeholders, including some associated with an emerging group known as CARE.

## **THE REVISED APPLICATION AND STAFF REPORT**

Based on information gained from this community engagement, Vulcan developed an updated Use on Review Application (the “**Revised Application**”) committing to underwrite options for the realignment and dedication of Graybeal Road (rather than its abandonment) to be placed over Vulcan’s property and installing landscaping within the 100-foot buffer along its property line. On **June 30, 2026**, Vulcan submitted a clean and redlined version of the Revised Application highlighting the changes made to the Application. The Revised Application also included those original exhibits that were unchanged and revised exhibits reflecting the proposed revisions.

On **July 2, 2026** Knox Planning Staff submitted its report recommending approval of the Revised Application with eight (8) conditions (the “**July 2<sup>nd</sup> Staff Report**”). For ease of reference, a copy of the clean version of the July 2<sup>nd</sup> Staff Report (which includes the Revised Application and exhibits, as well as the Planning Staff’s eight (8) conditions) is attached hereto as **Attachment 1**.

## **ADDITIONAL OUTREACH AND AGREEMENT TO ADDED CONDITIONS**

Vulcan continued its community outreach. The group known as CARE made itself known to Vulcan and expressed the desire to meet with Vulcan to discuss the concerns of its members. At Vulcan’s invitation, on **July 6, 2026** it hosted, at the Dixie Lee Quarry facilities, the leadership team of CARE. Following a preliminary discussion of Vulcan plans, the group was outfitted with personal protection equipment (hard hat, glasses, etc.) and given a complete tour of the Quarry operation. Following the tour, the group reconvened in the Vulcan offices for further discussions. At the conclusion of these discussions, CARE’s leadership committed to provide Vulcan with a list of its concerns and what it proposed that Vulcan do to allay those concerns. Vulcan also committed to consider other ways to refine its safe and compliant Revised Application that would address concerns expressed by CARE.

Following its three (3) hour meeting with CARE representatives on July 6, 2026, on **July 8, 2026** Vulcan submitted to CARE and to the staff of Knox Planning its letter stating eight (8) additional conditions that it would commit to upon approval. **Attachment 2** hereto is a written description of these eight (8) conditions.<sup>1</sup>

On Friday, **July 24, 2026** Vulcan received a list from CARE of its proposals. Vulcan has committed to another meeting with CARE representatives to be held on July 28, 2026 at the Town of Farragut Community Center.

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<sup>1</sup> Attachment 2’s conditions were proposed by Vulcan shortly before the meeting on Knox Planning meeting on July 9, 2026 and the timing of which resulted in the postponement of this matter until August.

### **CONSOLIDATION OF VULCAN COMMENTS**

By this filing it is Vulcan's desire and intent to: (i) acknowledge and accept the staff's eight (8) conditions listed on page 53-2 of the July 2<sup>nd</sup> Staff Report, (ii) acknowledge and commit to include as part of Vulcan's undertakings the additional eight (8) conditions which are set out on and attached to this letter as **Attachment 2**, and (iii) to update and amend the following exhibits to the Revised Application (collectively attached as **Attachment 3**):

(a) Exhibit R 5.0 (7-27-26) (Plan of Operation) is updated to reflect commitments based on the added conditions of Attachment 2. It is also supplemented to identify in Exhibits 5.1 and 5.2 the layers of local, state and federal regulatory oversight governing Vulcan's operations that are independent and outside of Knox Planning's Use on Review purview.<sup>2</sup>

(b) Exhibit R 8.0 (7-8-26) (Quarry Extension Overview and Sightline Drawing) updated to include extended buffers consistent with the conditions in Attachment 2.

(c) Exhibits Graybeal A and Graybeal B (7-8-2026) to update how each route might fit within the extended buffers consistent with the conditions in Attachment 2.

Yours truly,



Thomas M. Hale

TMH/tmm  
Attachments

cc: Mike Reynolds  
Carol Landrum  
Brandon Bournes  
Joshua Robbins

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<sup>2</sup> The focus of the proper inquiry of the Planning Commission is whether or not the Petitioner has met the requirements of the Zoning Ordinance, not to deny it permission to use its property for actions based on matters regulated by other regulatory agencies. "[w]here a petitioner for a zoning permit has met all the requirements of the applicable zoning resolution, and where the zoning authority denies the permit based on reasons other than the petitioner's compliance with the resolution, the [zoning authority's] action in denying the permit is arbitrary and unreasonable." In other words, a board member cannot vote to deny an application when the board member believes the applicant has met the necessary zoning requirements. Further, when an applicant has complied with the requirements of the ordinance, an administrative body may not deny the permit because of concerns of neighboring landowners. *Hoover, Inc. v. Metro Board of Zoning App.*, 924 S.W.2d at 905 (citations omitted).]



## ATTACHMENT A

## USE ON REVIEW REPORT

► FILE #: 7-B-26-UR

AGENDA ITEM #: 53

AGENDA DATE: 7/9/2026

► APPLICANT: THOMAS M. HALE

OWNER(S): Vulcan Lands, Inc.

TAX ID NUMBER: 129 080 (PARTIAL), 08001

[View map on KGIS](#)

JURISDICTION: County Commission District 6

STREET ADDRESS: 1624 GRAYBEAL RD (0 GRAYBEAL RD)

► LOCATION: East side of Graybeal Rd, south of Buttermilk Rd

► APPX. SIZE OF TRACT: 60 acres

GROWTH POLICY PLAN: Rural Area

ACCESSIBILITY: Access is via Graybeal Road, an unstriped local street with 14-19 ft of pavement width within a 50-ft right-of-way.

UTILITIES: Water Source: West Knox Utility District

Sewer Source: West Knox Utility District

FIRE DISTRICT: Karns Fire Department

WATERSHED: Hickory Creek

► ZONING: A (Agricultural)

PLACE TYPE: RL (Rural Living), HP (Hillside Ridgetop Protection)

► EXISTING LAND USE: Agriculture/Forestry/Vacant Land

► PROPOSED USE: Mining and mineral extraction (quarry) expansion

HISTORY OF ZONING: None noted.

SURROUNDING LAND USE AND ZONING: North: Rural residential, single family residential - A (Agricultural)

South: Rural residential, agriculture/forestry/vacant land - A (Agricultural)

East: Single family residential (under construction), agriculture/forestry/vacant land - PR (Planned Residential) up to 2.5 du/ac

West: Mining and landfills - A (Agricultural)

NEIGHBORHOOD CONTEXT: The surrounding area is predominantly rural in character, with large lots off of thoroughfares and limited suburban-style development off of side streets. There is a commercial node to the southwest at the Everett interchange off of I-40/I-75.

## STAFF RECOMMENDATION:

► Approve the request to expand existing quarry (mining and mineral extraction) operations, as shown in the plan of operations, subject to 8 conditions.

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## STAFF RECOMMENDATION:

► **Approve the request to expand existing quarry (mining and mineral extraction) operations, as shown in the plan of operations, subject to 8 conditions.**

1. Meeting all requirements of Article 4, Section 4.50.02 (Standards for use-on-review approval of mining and mineral extraction) in the Knox County Zoning Ordinance, as detailed in the staff report comments.
2. Construction of the vegetated berm, 20-25 ft in height between the abutting residential properties and the quarry operations, regardless of whether Graybeal Road is closed or rerouted.
3. Preservation of trees as much as is practicable, and planting new trees where trees were either removed or are sparse, sufficient to meet the Knox County Type A Landscape Screen, along any shared lot line with a residential use.
4. Meeting all other applicable requirements of the Knox County Zoning Ordinance, including, but not limited to, Article 4.10, Supplementary Regulations Applying to a Specific, to Several, or to All Zones, which has stipulations related to noise and light, among others.
5. Meeting all applicable requirements of the Knox County Department of Engineering and Public Works.
6. If during design plan approval or construction of the development, it is discovered that unforeseen off-site improvements within the right-of-way are necessary as caused by the development, the developer will either enter into a memorandum of understanding (MOU) with the County for these improvements or reimburse the County for their direct expenses (if completed by County crews) to make corrections deemed necessary.
7. If outdoor lighting is to be added, all light sources shall be shielded and arranged so that lighting is directed away from any boundary adjacent to residential uses.
8. A concept plan will be required if Graybeal Road is closed or relocated.

#### **COMMENTS:**

This request is to expand the quarry operations of Vulcan Materials Company. The Vulcan Materials Company facility has been in operation since 1974. Expansion requests were approved in 1996 (11-H-96-UR) and 2009 (4-B-09-UR). The facility as it operates today covers several parcels along Buttermilk Road, extending from Everett Road on its west to Graybeal Road on its east. This request adds the remainder of parcel 121 080 and all of parcel 121 08001 to the operation. Parcel 121 080 spans Graybeal Road on the east and west sides, so expansion onto the east side of this parcel would entail crossing the street with the operation. The applicant is proposing three options to avoid this: closure of Graybeal Road and two options for its relocation. One relocation option connects to Buttermilk Road; the other would connect to Hickory Meadows Way. While the road location is not part of this use on review application, either relocation option, or closure of Graybeal Road, would release the land occupied by the current street surface and allow the quarry expansion to be on contiguous land.

Access to the site would not change as a result of this proposal; the applicant has stated they will retain their current access point off of Everett Road. The Plan of Operations details the hours of operation and the types of activities that will be conducted. Construction of the berm would be limited to between 7am-6pm; all blasting of the quarrying operation would be conducted from 9am-4pm Monday through Friday only; all other quarry operations within the A zoned portion of the property (i.e., the property associated with this rezoning) would be conducted from 7am-9pm Monday through Saturday.

The landscape plan cites preservation of most of the trees along the shared lot line with the residential uses to the east and north and shows these areas in profile as containing existing and new trees along the shared lot lines. The landscape plan also shows a fence on the quarry side of rerouted Graybeal Road, along with 20-25 ft tall, vegetated berm between the right-of-way and the operations area, providing a visual screen from the residential properties. These measures will help mitigate some of the impacts of the quarry, though the noise and vibrations may still be a factor for nearby residents.

Exhibit R4.0 functions as a general site plan and shows the quarry operations extending to a point 300 ft from the property lines shared with the single-family neighborhood to the east and the single-family residential properties to the north fronting Buttermilk Road. Plans also show the quarry operations extending to a point 200 ft from the rerouted right-of-way on the east, should that come to fruition.

#### **DEVELOPMENT STANDARDS FOR USES PERMITTED ON REVIEW (ARTICLE 4.10, SECTION 2)**

The planning commission, in the exercise of its administrative judgment, shall be guided by adopted plans and policies, including the general plan and the following general standards:

#### **THE USE IS CONSISTENT WITH ADOPTED PLANS AND POLICIES, INCLUDING THE COMPREHENSIVE PLAN OF KNOX COUNTY.**

- A. The property is in the HP area. Most of the property is relatively flat with slopes in the 0-15% range
- B. The property is designated as the RL (Rural Living) place type. The RL place type is described as being primarily comprised of single-family residential uses within a rural setting, and may include agriculture, open

space, and some limited commercial that supports agriculture and civic uses. The primary land uses listed for this place type are open space and single family residential. The place type lists small-scale commercial, civic, and agricultural uses as secondary.

C. The proposed development may be inconsistent with the Comprehensive Plan's Implementation Policy 2, to ensure that development is sensitive to existing community character. The expansion of quarry activity at this location will produce smoke, noise, and vibrations on neighboring properties. The conditions of approval are intended to help mitigate any adverse impacts.

## 2) THE USE IS IN HARMONY WITH THE GENERAL PURPOSE AND INTENT OF THE ZONING ORDINANCE.

A. The A zone provides for a wide range of agricultural and related uses as well as residential uses with low population densities and other compatible uses which generally require large areas or open spaces. This use requires large open areas and meets that criteria, but is not necessarily compatible with the uses described, including residential uses with low population densities.

B. Article 6.50 acknowledges that "mineral extraction may involve differing processes and may seriously affect mined parcels and surrounding properties" and provides the criteria for reviewing this use to try to mitigate those impacts. Article 6.50.02 is specific to surface mining and mineral extraction and is the relevant section for this review. This section stipulates that a conditional use permit is approved by the Planning Commission and County Commission, so this use on review will require County Commission approval if approved by the Planning Commission.

C. The standards for review contained in 6.50.02 are as follows, and the plans meet these criteria.

1. Excavations shall be confined to areas at least one hundred (100) feet from any property line within or adjacent to any residential, agricultural or commercial zone, and shall be at least two hundred (200) feet from the property line of any dwelling or platted subdivisions. Further, no overburden, spoil bank or stockpile may be deposited within one hundred (100) feet of any such property lines, except with the written consent of the owners of the adjoining property, to reduce the elevation and conform with the existing contour or average grade of the adjoining property or in order to provide adequate drainage. The quarry operations are shown to extend to a point 300 ft from the property lines of the abutting single-family neighborhood to the east.

2. In any nonindustrial zone, the excavations shall be confined to areas at least one hundred (100) feet from the right-of-way line of any existing or platted street, road or highway; except that excavations may be conducted within such limits in order to reduce the elevation thereof to conform to the existing or established elevation of the adjoining or platted street, road, or highway, or in order to provide for adequate drainage. The site plan shows the quarry operations extending to a point 200 ft from the rerouted Graybeal Road right-of-way.

3. Since this is a non-industrial zone: 1) Any building containing power-driven or power-producing machinery or equipment shall be at least five hundred (500) feet from all adjacent property zoned residential, commercial, or agricultural. 2) Such building or equipment shall be at least two hundred (200) feet from the right-of-way lines of any existing or platted street, road, or highway. No such buildings or equipment are proposed with this application, but should they be added in the future, they would be required to meet these criteria.

4. All roadways on, vehicular entrances to, and exits from the private, subject properties to any public roads shall be located to secure safety, lessen congestion and facilitate transportation and shall be maintained to eliminate any nuisance from dust to neighboring properties. Access to and from the site will remain as is. No new access points will be created onto the quarry site.

5. A Plan of Operations shall be submitted for approval by the Planning Commission and County Commission, and shall provide in all respects:

a. Adequate safeguarding and protection of neighboring interests and the general public health and safety. The hours of operation, proposed preservation of and addition of new trees to provide a landscape screen at the shared property line with residences, and the fence and berm providing sound attenuation and a visual barrier, will help mitigate some of the impacts of the quarry, though the noise and vibrations may still be a factor for nearby residents.

B. A satisfactory plan for the routing of trucks, materials and equipment from the points of excavation to the permittee's processing operations. Access is not proposed to change, so the traffic pattern to and from the site is not anticipated to be greatly impacted, other than the rerouting of Graybeal Road to the other side of the site.

C. A plan and program for the restoration of the land to minimize potential detrimental effects on the area by reducing, insofar as is reasonably possible, peaks and depressions, and controlling erosion. The landscape plan proposes to capture and filter stormwater runoff in bioswales that will flow generally from north to east towards the low area at the southeast corner of the property where it feeds into Hickory Creek.

6. Whenever the permit issued by the Director of Code Administration and Enforcement has expired, or whenever the operation of excavation has been discontinued for any period exceeding twelve consecutive months, then, all plants, buildings, structures (except fences) and equipment shall be entirely removed from the property and the property shall be restored in accordance with the approved plan and program for restoring land, except approved otherwise by the Planning Commission upon request at that time. Page 5 of the Plan of Operations details the plan of operation that would occur upon the completion of mining activities.

7. If the property to be used for such excavation is within one hundred (100) feet of any residential zone or platted subdivision, it shall be enclosed along the exterior boundaries as excavation progresses by a fence or landscape screen as prescribed by the Planning Commission. A vegetated berm 20-25 ft in height is proposed and is consistent with how the current quarry is screened from public rights-of-way and neighboring properties.

8. No excavation shall take place, or plant operated on any property in any nonindustrial zone, except between the hours of 7:00 a.m. and 9:00 p.m., except whenever any reasonable or necessary repairs to equipment are required to be made. Page 4 of the Plan of Operations details the hours of operation and the types of activities that will be conducted, and all activities fall within typical business hours of 9-4 Monday through Friday, though the weekend hours fall outside of that.

9. The provisions of subsection 1. above shall also apply to this subsection. Subsection 1 includes the following in addition to the provisions above.

A. Plans shall be furnished for planning commission approval as follows:

i. Screening. A landscaped screen shall be provided to obscure the mining buildings and machinery from adjacent nonindustrial areas. For this purpose, the operator will furnish the Planning Commission with a landscape plan. Submitted and in compliance.

ii. Roadways. All roadways on, and all vehicular entrances to and exits from the private properties on which such operations are conducted to any public roads shall be located to secure safety, to lessen congestion and to facilitate transportation and shall be so maintained as to eliminate any nuisance from dust to neighboring properties. A plan meeting these requirements shall be provided. The applicant has provided two options for rerouting Graybeal Road. No new access points are proposed. The Knox County Department of Engineering and Public Works has cited no engineering issues with either road relocation option.

iii. Traffic control. A satisfactory plan for the routing of trucks, materials and equipment along public streets and roads from point of extraction to permittee's processing operations shall be provided. As mentioned previously, the existing access would remain as is and would service the expanded portion of the quarry.

iv. Restoration. A plan of removal of unsafe structures and equipment, sealing of shafts and other measures proposed for restoring land to a safe and usable condition upon abandonment of the project shall be provided. The Plan of Operations includes details on dismantling the site upon cessation of activities.

3) THE USE IS COMPATIBLE WITH THE CHARACTER OF THE NEIGHBORHOOD WHERE IT IS PROPOSED, AND WITH THE SIZE AND LOCATIONS OF BUILDINGS IN THE VICINITY.

A. Mining and extraction, while not generally compatible with surrounding residential development, already exists at this location.

4) THE USE WILL NOT SIGNIFICANTLY INJURE THE VALUE OF ADJACENT PROPERTY BY NOISE, LIGHTS, FUMES, ODORS, VIBRATION, TRAFFIC CONGESTION OR OTHER IMPACTS WHICH MAY DETRACT FROM THE IMMEDIATE ENVIRONMENT.

A. Mining and extraction can produce effects that have adverse impacts on neighboring properties, such as smoke, noise, and vibrations.

B. The proposed use should have little impact on traffic since the access point will remain the same.

5) THE USE IS NOT OF A NATURE OR SO LOCATED AS TO DRAW SUBSTANTIAL ADDITIONAL TRAFFIC THROUGH RESIDENTIAL STREETS.

A. Access to the site is off of Buttermilk Road, a minor collector. No additional traffic will be added through residential neighborhoods.

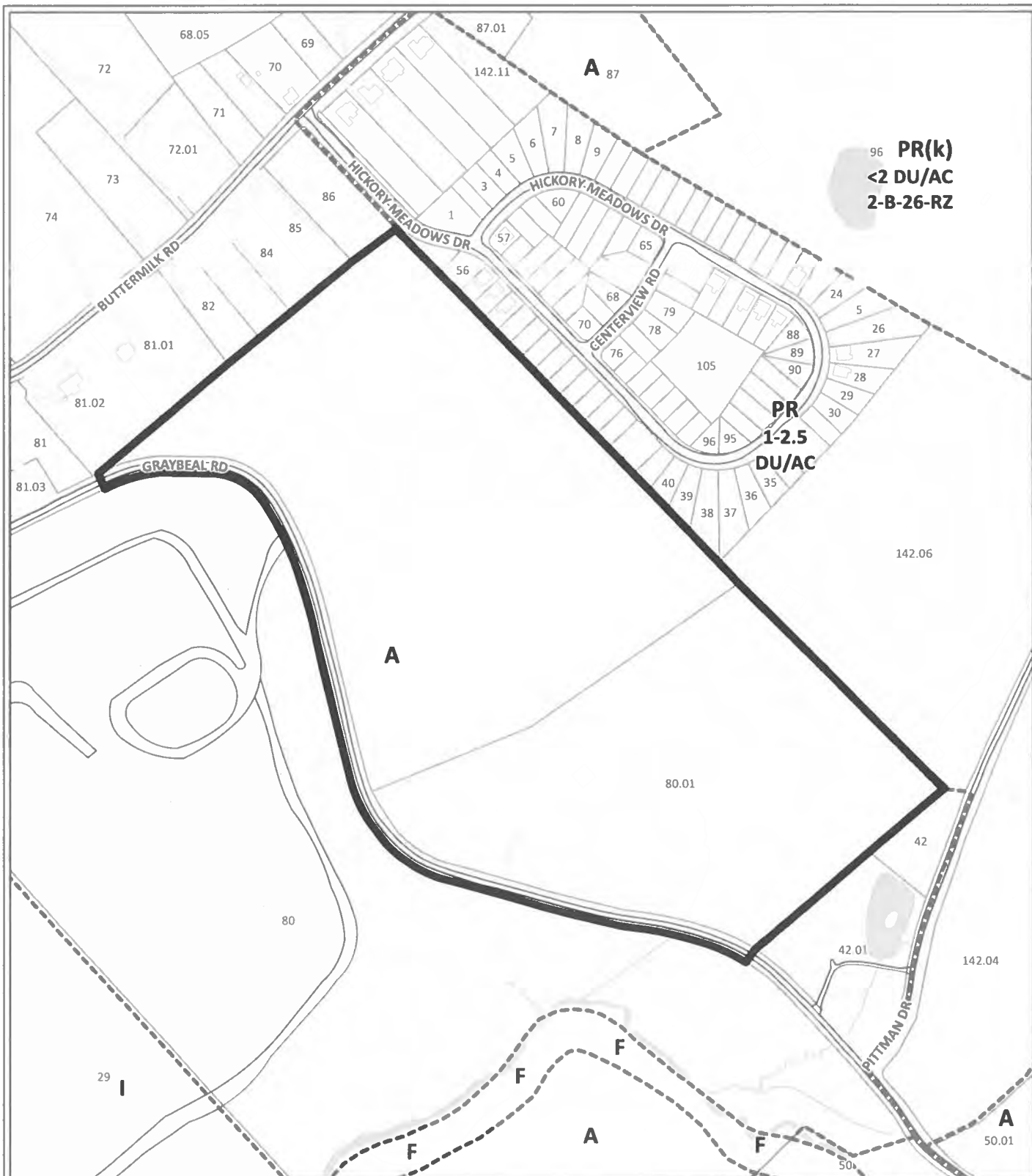
6) THE NATURE OF DEVELOPMENT IN THE SURROUNDING AREA IS NOT SUCH AS TO POSE A POTENTIAL HAZARD TO THE PROPOSED USE OR TO CREATE AN UNDESIRABLE ENVIRONMENT FOR THE PROPOSED USE.

A. There are no other known uses in the area that could be a potential hazard or create an undesirable environment for the proposed use.

ESTIMATED TRAFFIC IMPACT: Not required.

ESTIMATED STUDENT YIELD: Not applicable.

The Planning Commission's approval or denial of this request is final, unless the action is appealed. For more information on the appeal process, contact Knoxville-Knox County Planning.



**USE ON REVIEW**

**7-B-26-UR**

**Petitioner:** Thomas M. Hale



Mining and mineral extraction (quarry) expansion in A (Agricultural)

**Original Print Date:** 6/1/2026

Knoxville - Knox County Planning Commission \* City / County Building \* Knoxville, TN 37902

**Map No:** 129

**Jurisdiction:** County

0 430

Feet



## Exhibit A. Contextual Images



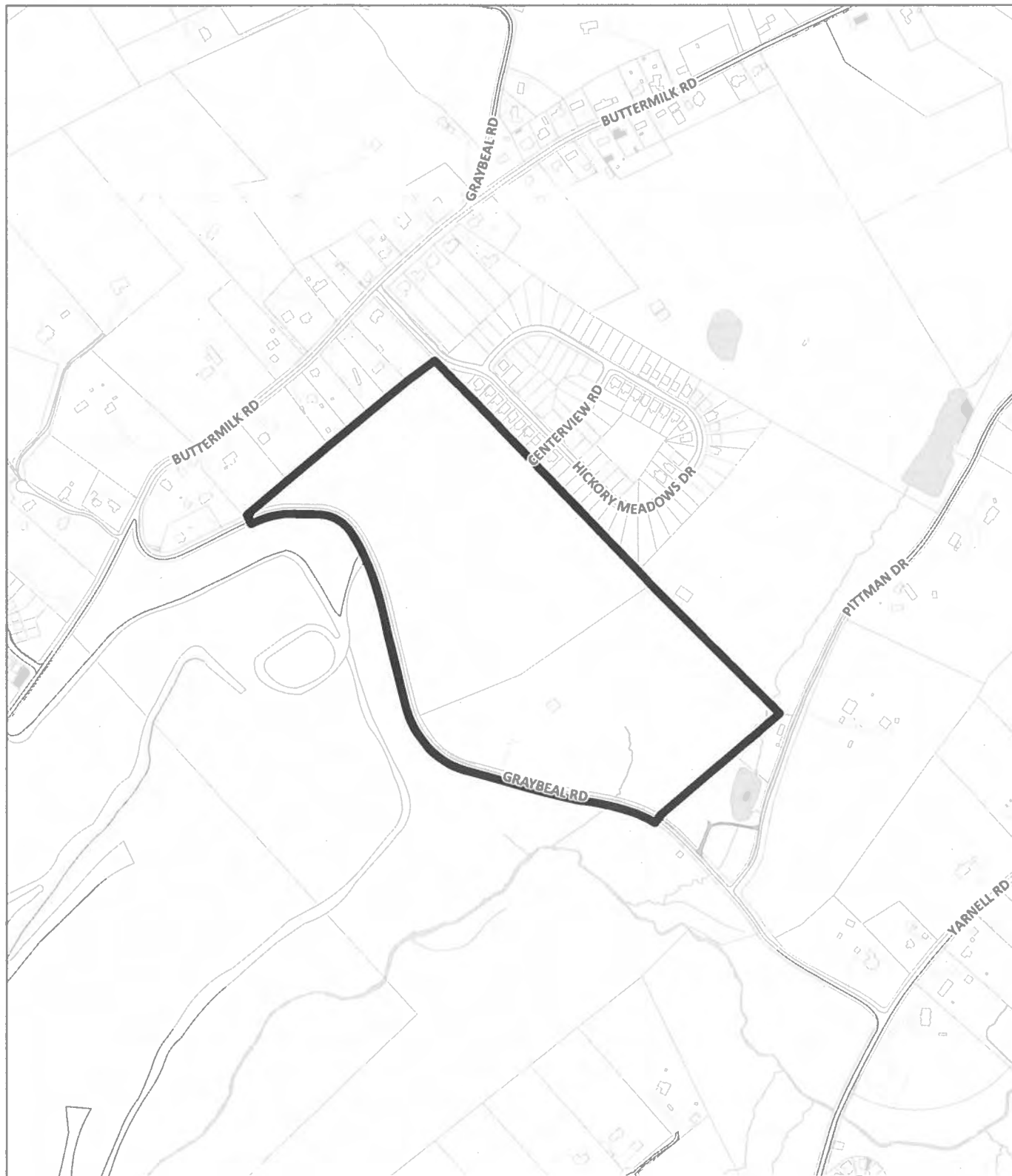
### AERIAL MAP



Case boundary



## Exhibit A. Contextual Images



**LOCATION MAP**

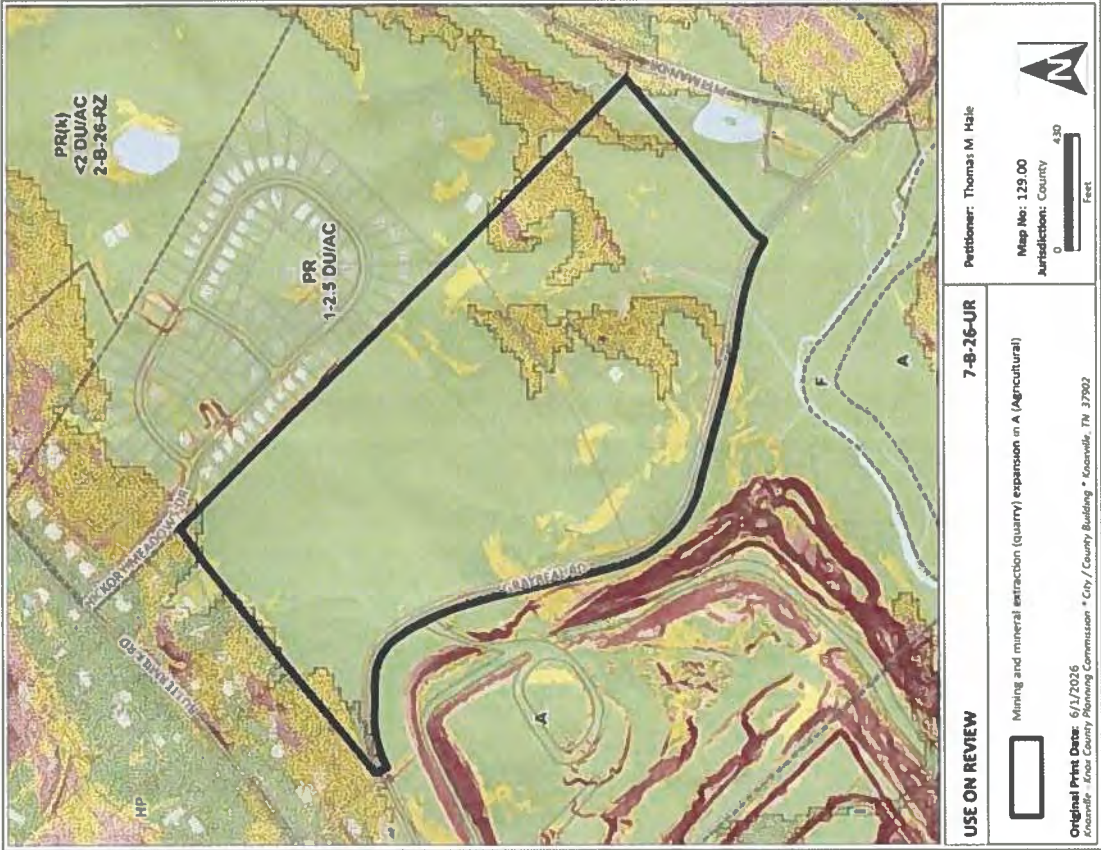
**7-B-26-UR**



Case boundary



| CATEGORY                            | ACRES | RECOMMENDED<br>DISTURBANCE BUDGET<br>(Percent)              | DISTURBANCE AREA<br>(Acres) |
|-------------------------------------|-------|-------------------------------------------------------------|-----------------------------|
| Total Area of Site                  | 60.01 |                                                             |                             |
| Non-Hillside                        | 52.30 | N/A                                                         |                             |
| 0-15% Slope                         | 1.44  | 100%                                                        | 1.4                         |
| 15-25% Slope                        | 5.74  | 50%                                                         | 2.9                         |
| 25-40% Slope                        | 0.50  | 20%                                                         | 0.1                         |
| Greater than 40% Slope<br>Ridgetops | 0.03  | 10%                                                         | 0.0                         |
|                                     |       |                                                             |                             |
| Hillside Protection (HP) Area       | 7.70  | Recommended<br>disturbance budget within<br>HP Area (acres) | 4.4                         |
|                                     |       | Percent of HP Area                                          | 57.2%                       |



**Dixie Lee Quarry - Present Operation and Proposed Operation of Quarry Extension**

*List of Exhibits*

*1.0 Market Demand*

*2.0 Area Map showing Parcel Zoning*

*R 3.0 Site Plan (Existing Quarry Area and Extension Area)*

*R 4.0 Extension Area Site Plan*

*R 5.0 Proposed Plan of Operation*

*6.0 Traffic Study*

*7.0 Proposed Permitted Area Metes and Bounds Description*

*R 8.0 Sightline Drawing*

*Graybeal A*

*Graybeal B*

**Introduction and Summary:**

Vulcan Lands, Inc., ("Vulcan"), has filed herewith an application For Use on Review, for mining and mineral extraction, in order to obtain an Amended Permit extending the area of its Dixie Lee Quarry (the "Quarry Extension"). Starting before public notice was issued, Vulcan sent letters to more than 160 neighboring property owners and has been actively engaging with stakeholders and community members about this proposal. Outreach efforts have included meeting directly with property owners on their properties, hosting quarry tours, responding to emails and phone calls, and holding a Neighbor Information Open House on June 11, 2026. More than 60 people attended the open house to ask questions, provide feedback, and learn more about the project. Feedback gathered through these conversations and engagement efforts has helped inform refinements to the proposal.

Dixie Lee Quarry has long been a valued part of Knox County, supplying the high-quality construction materials used to build and maintain the roads, schools, hospitals, homes, and places of worship that serve our community every day. Vulcan's engineering and operations teams have developed a plan to update the existing operation, ensuring it can continue meeting the region's needs for years to come.

Early activity at the quarry site in west Knox County began in the early 1960's, providing aggregate for Interstate highway construction. In 1975, Vulcan obtained a permit for the Dixie Lee Quarry on land that it leased and has successfully operated to the present time.

Planning for the future, Vulcan strategically acquired approximately 161 acres of land in 1989 (the "Acquired Land") adjacent to its existing quarry operation to help meet anticipated demand for aggregate. In 1996, Vulcan applied for and received approval of an Amended Plan of Operation. In 2009, the company obtained approval of a Use on Review application, amending its permit to extend the permitted area to include approximately 104 acres of the Acquired Land. The remaining +/- 57.8 acres ("Remaining Acquired Land") and a portion of the Graybeal Road

right-of-way (**Exhibit R 3.0**) comprise the area (“Subject Area”) of this current Use on Review request.

Given the current and expected long-term demand, Vulcan desires to optimize its existing operation to access its reserve footprint on its property to responsibly serve the market and keep construction and maintenance costs as low as possible. See **Exhibit 1.0** for market projections.

The Knox County Zoning Ordinance recognizes that “the extraction of minerals is a basic industry” and that such deposits “do not necessarily align with the zoning boundaries established.” Accordingly, it establishes specific standards for mining and extraction operations (Sections 4.50 and 4.05.02(A)–(C)). Vulcan’s plan to update its operations includes submitting this application for a permitted Use on Review for its two parcels on the remaining Acquired Land, located across Graybeal Road from its existing property and current mining area.

The two parcels in the Subject Area are currently zoned Agricultural and are designated as Rural Area on the Growth Policy Map of the Knoxville–Farragut–Knox County Growth Policy Plan (the “Growth Plan”). The Growth Plan states in Section 4.1 that permitted land uses in Rural Areas are determined by the Zoning Ordinance and Zoning Map, and that the Rural Area designation shall not impede the right of the landowner to use or develop the property for purpose permitted by the property’s zoning.

The proposed Quarry Extension will be used exclusively for stone extraction, with no accessory buildings, structures, fixed production equipment, or lighting. It will include a 300-foot buffer, a portion of which will feature a substantial vegetated screening berm along properties not owned or controlled by Vulcan. The extension will not create additional demand, alter the location of existing quarry production plant areas, increase overall site production, or change customer truck traffic volume or patterns. Access to the extension area will be limited to internal routes within the quarry’s existing operations, with no direct public or customer access via external roads or driveways. Vulcan will secure the area of the Quarry Extension by installing a fence around the entire Extension Area. The actual location of the fence will be determined based on the topography and stormwater management needs of the area.

If approved, the Use on Review would allow stone extraction from a portion of the Subject Area, with nearly half of the total area dedicated to buffers and vegetated screening berms, and is intended to meet market demand for construction aggregates in Knox County and the surrounding market.

As part of the proposed Quarry Extension, Vulcan will submit a road closure application to partially vacate Graybeal Road (on the East at Pittman Drive and on the West at Buttermilk Road) a little-used county road that dissects the land acquired by Vulcan in 1989. As noted hereafter, Vulcan recently learned of stakeholder and County interest in relocating Graybeal Road from its current location to a new location across Vulcan’s land. In relation to the required 100-foot undisturbed, vegetated buffer and the toe of the 200-foot vegetated berm, Vulcan proposes to construct a road upon a 60-foot dedicated right-of-way located generally between these two areas resulting in a 360-foot buffer with a design as worked out with the Knox County Engineering Department.

This application promotes the efficient use of an existing operation and leverages high-quality stone deposits that are vital to the Knox County economy. The proposal represents a natural and efficient extension of the current mining area and production infrastructure, and its established land use. It is also situated adjacent to property already zoned for industrial purposes.

The continued responsible and efficient production of high-quality construction aggregates is essential to the economic health of Knox County. Stone aggregate plays a critical role in building and maintaining infrastructure, including roads, bridges, utilities, water systems, buildings, and housing. Vulcan's products meet Department of Transportation (DOT) standards and are integral to supporting these community needs.

Present Operation (Existing Quarry Area):

Vulcan has a long-term lease on approximately two hundred thirty-nine (239) acres in west Knox County, and owns, in fee, approximately one hundred eighty-six (186) additional acres. Vulcan has held the leased property since 1975. It has owned most of its fee property since 1989. The area currently permitted is primarily zoned Industrial, while the land added to the permitted area in 2009, consisting of approximately one-hundred and four (104) acres, is zoned Agricultural. The area for which Vulcan seeks the Use on Review herein is also zoned Agricultural. See **Exhibit 2.0** for an area map that shows the zoning of the various parcels.

The quarry is located on 1716 Everett Road, north of and approximately 2,500 feet from Interstate 40, at the Watt Road interchange. As noted, the existing Dixie Lee Quarry operation is located on approximately 343 acres, and includes the quarry pit, offices, shop, production facilities, sales yards, berms, buffers and tenant hot mix asphalt plants. Buffers and berms comprise about 92.1 acres, as shown on **Exhibit R 3.0**.

Vulcan works hard to be a good neighbor by meeting or exceeding local, state, and federal community-focused safeguards and regulatory requirements that are protective of people, land, air and water. These include regulations and oversight from the Knox County Department of Air Quality Management, the Tennessee Department of Environment & Conservation (TDEC), the State Fire Marshal, the Mine Safety and Health Administration (MSHA), the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (USACE).

Furthermore, Vulcan is, and has been, in compliance with the Knox County Zoning Ordinance. Vulcan specifically represents that its operations are and will be in compliance with Section 4.50 "Standards For Mining and Mineral Extraction," and Sub-Section 4.50.02(B), Paragraphs 1 through 9 of the Knox County Ordinance.

Proposed Plan of Operation Summary (Quarry Extension Area):

Vulcan desires to permit an additional +/- 57.8 acres it owns to serve as an extension (the "Extension Area") to its existing mining area for extraction and related uses to the Extension Area of which +/- 25 acres will be used for buffers or berms and +/- 32.8 acres as an extension of the existing surface mine (see **Exhibit R 4.0**). The purpose for amending its plan of operation is

to optimize the existing mining area and allow for continued safe access to the existing reserves on its property to serve the Knox County market area. See **Exhibit R 5.0** for the full Proposed Plan of Operation.

The proposed Quarry Extension will be used exclusively for stone extraction, with no accessory buildings, structures, fixed production equipment, or lighting. Section 4.50.02 of the Regulations requires certain setbacks from adjoining properties zoned Residential, and Vulcan will continue to meet these regulations as it has demonstrated for more than fifty years. The Knox County Zoning Ordinance requires a 200-foot set back from residentially zoned property at § 4.50.02.B.2. However, Vulcan proposes that adjacent properties not owned or controlled by Vulcan will be screened by a 300-foot buffer (360-foot if Graybeal is relocated), including a 100-foot undisturbed fenced area and a 200-foot vegetated berm similar to the existing berm along Buttermilk Road (and possibly an additional 60-foot road right-of-way). There will be no public or customer access to the extension area from external roads; all access will occur internally through the existing quarry, with no impact on local traffic.

All extraction will occur at least 300 feet (possibly 360 feet) from neighboring properties. Operations will take place behind the vegetated berm and buffer and will not be visible from adjacent properties. The extension will be incorporated into the existing mine permit and operate under the same local, state, and federal regulations as the current quarry.

Because Graybeal Road bisects both the existing quarry area and the proposed quarry extension area (each owned by Vulcan), Vulcan is concurrently seeking approval from the Knox County Commission, alongside this Use on Review application, to vacate a portion of Graybeal Road between Pittman Drive on the East and Buttermilk Road on the West (see associated traffic study in **Exhibit 6.0**). Residents on the west side near the Buttermilk Road would access their properties via a private drive. Vulcan will fund roadway improvements at the Graybeal Road/Pittman Drive curve, and Pittman Drive will continue to connect to Yarnell Road.

Vulcan has been in recent discussions with Knox County Engineering about the possibility of Vulcan replacing current Graybeal Road with a wider, realigned and improved Graybeal Road. To date those discussions have involved optional realignments across Vulcan's property generally as shown on **Exhibits** marked **Graybeal A** and **Graybeal B**. The options in the subject area for relocating a new and improved road will require Vulcan to incur engineering expenses, and to have further discussions with Knox County.

Vulcan acknowledges that the closure of a portion of Graybeal Road and/or the relocation of the Road will require the approval of Knox County Commission. The point of significance for this Use on Review application is that the effect of relocating Graybeal Road to the area being discussed is to enlarge the buffer between adjacent landowners and active mining operations by an additional 60 feet. As contemplated by the Knox County Zoning Ordinance which contemplates conditions upon approvals, Vulcan seeks approval of its application conditioned upon working out the details of the road relocating with Knox County.

The metes and bounds description of the proposed permitted area, which is the subject of this Use on Review, is attached as **Exhibit 7.0**. If the Knox County Commission approves

vacating a portion of Graybeal Road, Vulcan will extend its existing berm north along the properties adjacent to Buttermilk Road and shift the existing berm along Graybeal Road further north.

This will allow the current permitted area, the relocated Graybeal Road right-of-way, and the Extension Area to merge into a single amended Permit Area. The total area would consist of approximately 405 acres.

Vulcan proposed the following conditions, the same as imposed in its 2009 Use on Review application, upon its activities in the Extension Area: (i) the construction of the berm is to be limited to the hours between 7:00AM and 6:00PM; (ii) all blasting associated with the quarrying operation shall be permitted between 9:00AM and 4:00PM, Monday through Friday only; and (iii) all other quarry operations within the portion of the site that is zoned A (Agricultural) must be limited to the hours of 7:00AM and 9:00PM, Monday through Saturday.

#### Conclusion:

As previously outlined, the land covered by this application for Use on Review is zoned Agricultural. Under the Knox County Zoning Regulations, Section 5.22.03, Uses Permitted on Use on Review, for property zoned Agricultural, under Paragraph K, mining and mineral extraction activities are specifically permitted, so long as the property owner complies with Section 4.10 and Section 4.50 of the Ordinance. Section 4.50.02(C) allows the Planning Commission and the Board of Commissioners to approve an amended permit to alter the plan of operations previously approved. The drafters of the Ordinance knew that some land uses would be a challenge, but the need for them would warrant their existence, such as the extraction of strategic, necessary and useful materials from the earth as Vulcan seeks through this application. The Zoning Ordinance provides that “certain uses . . . are unique in nature, require large land areas, are potentially incompatible with existing development . . .” and “because they more intensely dominate the area in which they are located” and “the nature of such use makes it desirable that they be permitted to locate therein.” Knox County Zoning Ordinance Section 4.10 Section 2, Development Standards for Uses Permitted on Review.

Aggregate resources are non-renewable strategic materials, and existing extraction operations must periodically update their plans to maintain safe and reliable access to existing high-quality reserves. Doing so ensures the quarry can continue to responsibly support the infrastructure, construction, and economic needs of Knox County.

Under this proposed plan, Dixie Lee Quarry will continue to efficiently utilize its existing reserves and infrastructure to meet current and future local demand for high-quality aggregates. Optimizing this established operation is essential. Developing new quarries would require developing hundreds of acres of land for new industrial use, adding significant truck traffic, and increasing construction and maintenance costs, particularly due to longer haul distances.

The Quarry Extension will be screened by 300 feet, and possibly 360 feet, of buffer area and substantial vegetated berms (see **Exhibit R 8.0**). It will be required to operate under regulations that are protective of people, land, air and water. These include oversight from the

Knox County Department of Air Quality Management, the Tennessee Department of Environment & Conservation (TDEC), the State Fire Marshal, the Mine Safety and Health Administration (MSHA), the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (USACE).

For nearly 70 years, Dixie Lee Quarry has helped support Knox County and surrounding communities. Vulcan provides local jobs and contributes substantially to the county's tax base, and it remains committed to ongoing investment in the region.

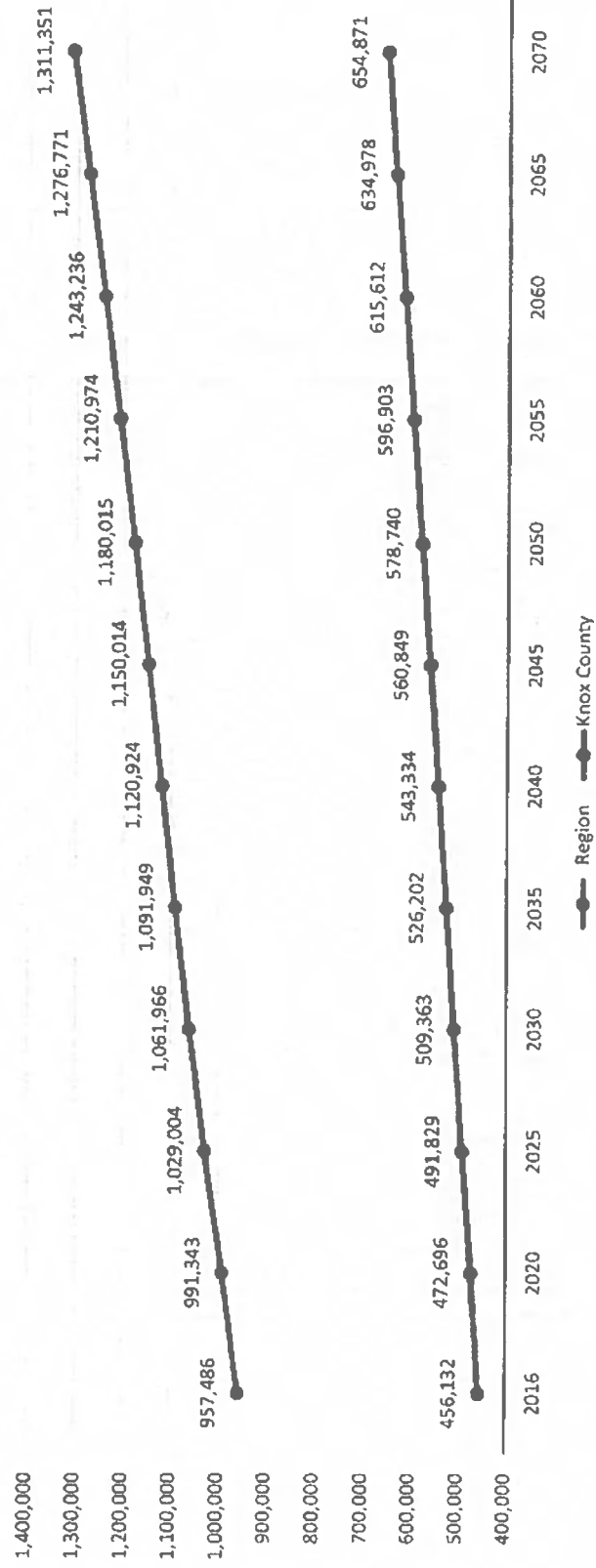
Given Vulcan's long record of responsible operation, the availability of high-quality on-site reserves and consistency with Knox County's Use on Review provisions, Vulcan respectfully requests approval of this proposed plan of operation subject to the addition to the 300-foot buffer of an added 60 feet of right-of-way to be occupied by the relocation of Graybeal Road, and conditioned upon the approval of Knox County Commission of the abandonment and relocation at the applicant's expense of Graybeal Road similar to the alignments shown on **Exhibits Graybeal A or Graybeal B.**

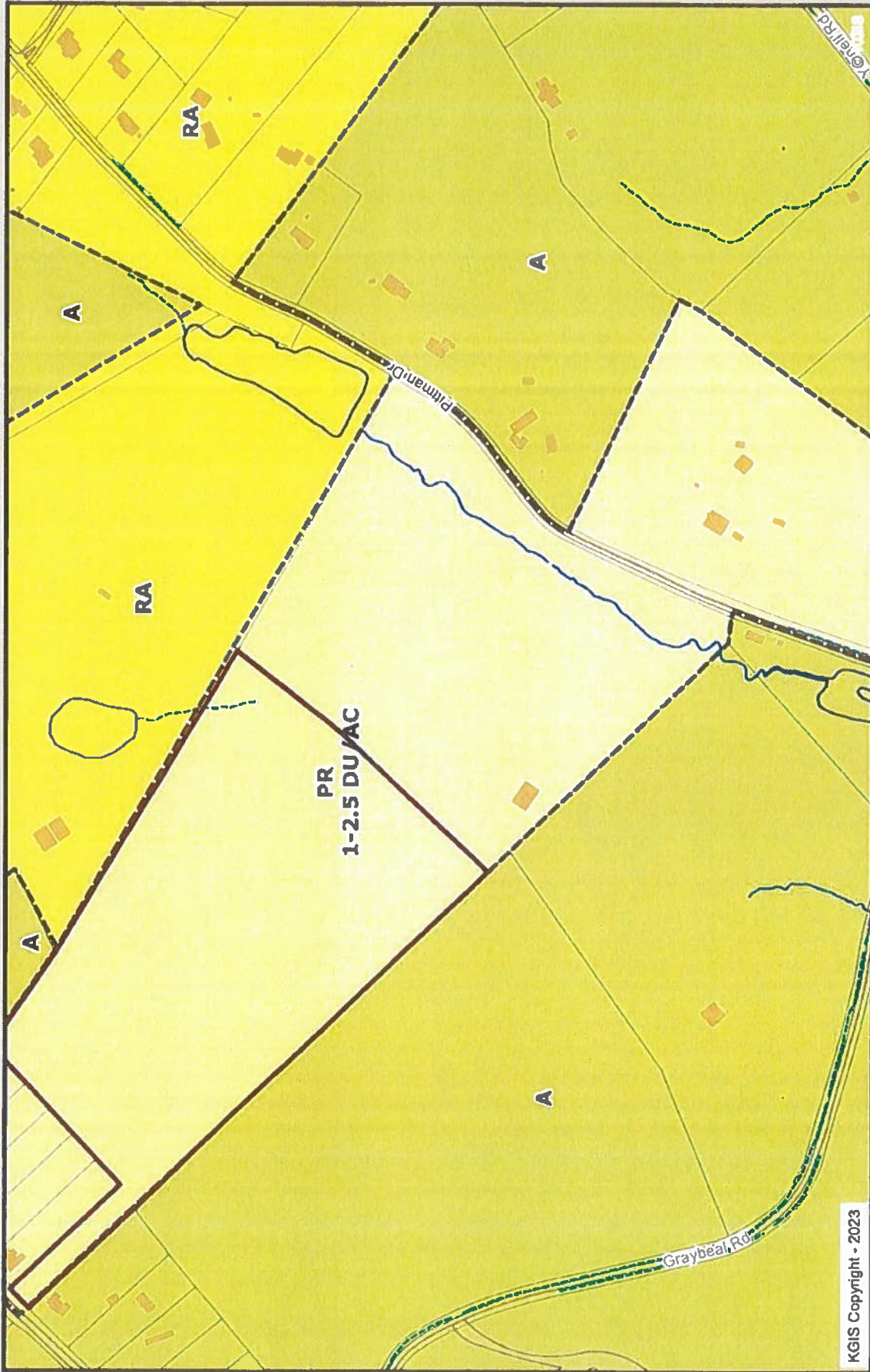
PROJECTED POPULATION GROWTH, KNOX AND SURROUNDING COUNTIES, 2016-2070

| County           | 2016    | 2020    | 2025      | 2030      | 2035      | 2040      | 2045      | 2050      | 2055      | 2060      | 2065      | 2070      | Growth Rate<br>(% 2016-70) |
|------------------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|
| Anderson County  | 75,936  | 77,227  | 78,454    | 79,329    | 80,027    | 80,677    | 81,349    | 82,050    | 82,750    | 83,492    | 84,314    | 85,216    | 10.3                       |
| Blount County    | 128,670 | 134,265 | 140,526   | 146,031   | 150,925   | 155,410   | 159,729   | 164,105   | 168,560   | 173,138   | 177,818   | 182,606   | 36.0                       |
| Granger County   | 23,072  | 23,443  | 23,742    | 23,835    | 23,762    | 23,578    | 23,345    | 23,117    | 22,913    | 22,736    | 22,572    | 22,413    | -4.4                       |
| Jefferson County | 53,535  | 55,178  | 56,842    | 58,145    | 59,166    | 59,986    | 60,710    | 61,447    | 62,244    | 63,114    | 64,045    | 65,037    | 17.9                       |
| Knox County      | 456,182 | 472,698 | 491,829   | 509,163   | 526,202   | 543,324   | 560,849   | 578,740   | 596,963   | 615,632   | 634,978   | 654,871   | 38.5                       |
| Loudon County    | 51,454  | 54,039  | 56,835    | 59,231    | 61,341    | 63,329    | 65,398    | 67,706    | 70,267    | 73,043    | 75,973    | 79,033    | 46.3                       |
| Roane County     | 52,874  | 52,819  | 52,427    | 51,713    | 50,780    | 49,760    | 48,750    | 47,808    | 46,944    | 46,161    | 45,458    | 44,827    | -15.1                      |
| Sevier County    | 96,673  | 102,302 | 108,834   | 114,824   | 120,405   | 125,752   | 131,080   | 136,545   | 142,208   | 148,061   | 154,039   | 160,083   | 56.5                       |
| Union County     | 19,140  | 19,375  | 19,515    | 19,495    | 19,341    | 19,097    | 18,804    | 18,496    | 18,186    | 17,879    | 17,573    | 17,266    | -10.9                      |
| Region           | 957,486 | 991,343 | 1,029,004 | 1,061,966 | 1,091,949 | 1,120,924 | 1,150,014 | 1,180,015 | 1,210,974 | 1,243,236 | 1,276,771 | 1,311,351 | 32.3                       |

Source: Boyd Center for Business and Economic Research, University of Tennessee.

Projected Population Growth, Knox County and Region, 2016-2070





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## Knox County zoning map-Hickory Creek Partners

### Knoxville - Knox County - KUB Geographic Information System

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KGIS makes no representation or warranty as to the accuracy of its map and its information nor to its fitness for use. Any user of this map product accepts the same AS IS, WITH ALL FAULTS, and assumes all responsibility for the use thereof, and further covenants and agrees to hold KGIS harmless from any and all damage, loss, or liability arising from any use of this map product.

[illegible]

**Map Certification**

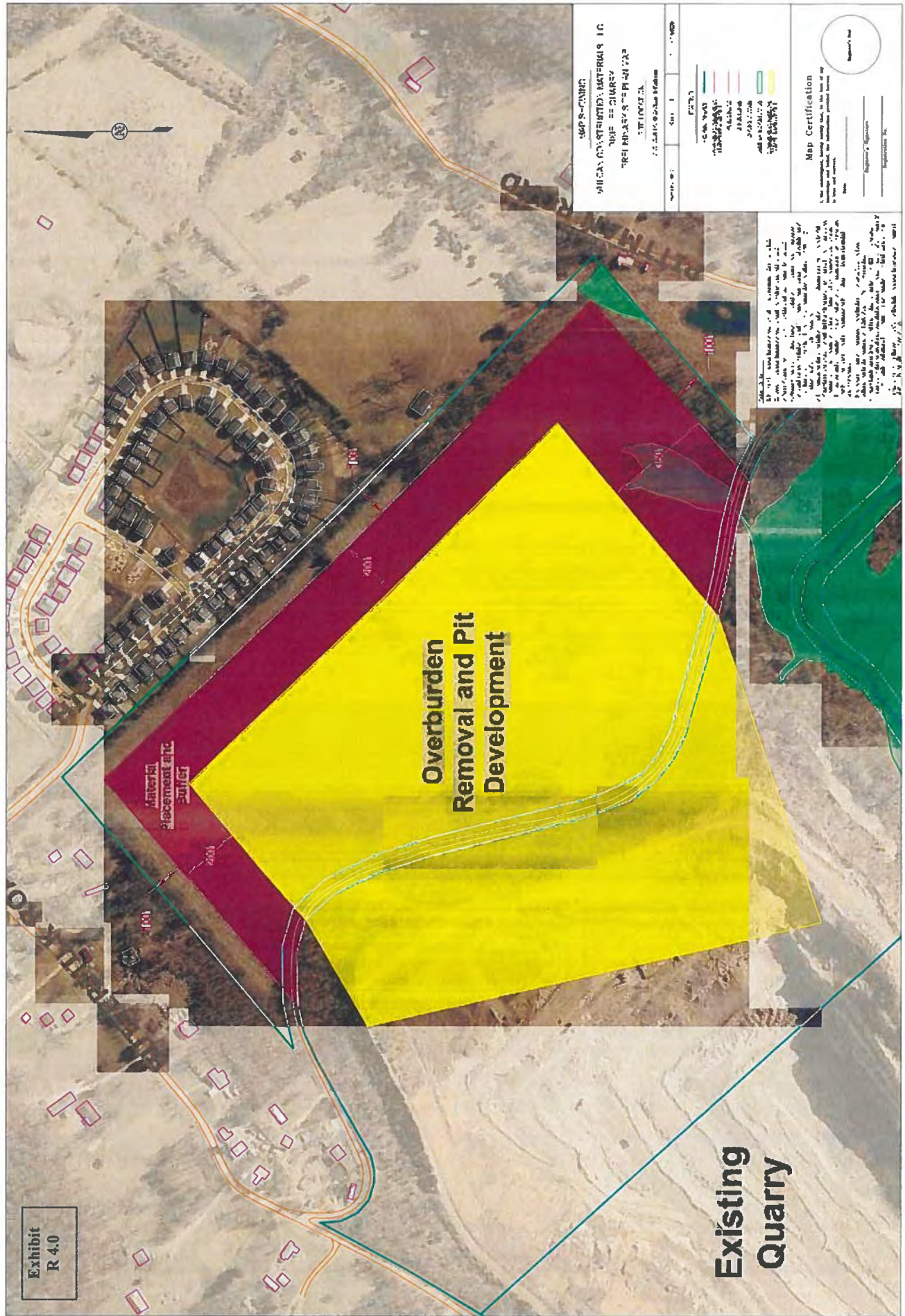
I, \_\_\_\_\_, hereby certify that, to the best of my knowledge and belief, the information provided herein is true and correct.

Date \_\_\_\_\_

\_\_\_\_\_  
Signature of Registrant

\_\_\_\_\_  
Registration No.

Exhibit  
R 4.0



## **EXHIBIT R 5.0**

### **Proposed Plan of Operation: Quarry Extension**

#### **Site Background**

The Vulcan Dixie Lee Quarry ("Existing Quarry") is located at 1716 Everett Road in Knox County, TN. It began operating in the 1960's and has been operated by Vulcan since at least 1975. In 1989, Vulcan acquired additional land for future extension of the quarry. A portion of this land was previously permitted. The remaining +/- 57.8 acres is separated from the Existing Quarry by Graybeal Road. Vulcan seeks to vacate a portion of road and to add the remaining acreage (the "Quarry Extension") to the Existing Quarry. This Proposed Plan of Operation for the Quarry Extension does not change Existing Quarry fixed site infrastructure, including production plant equipment, stockpile areas, entrance and exit driveways, scale and wheel wash, office and shop.

#### **Quarry Extension Access**

Access to the extension area will be limited to internal routes within the quarry's existing operations, with no public or customer access. Employee traffic, customer traffic, tenant traffic, contractor traffic and deliveries will continue to use the Existing Quarry entrance located at 1716 Everett Road. The Quarry Extension will not create additional demand, alter the location of existing quarry production plant areas, increase overall site production, or change customer truck traffic volume or patterns.

#### **Safety and Health Information**

Operations at the Existing Quarry are regulated by local, state and federal agencies including the Knox County Department of Air Quality Management, the Tennessee Department of Environment & Conservation (TDEC), the State Fire Marshal, the Mine Safety and Health Administration (MSHA), the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (USACE).

The MSHA Mine ID number for the site is 40-01427. The Quarry Extension will be added to and covered by this same Federal ID number. Federal inspectors inspect the quarry a minimum of twice per year. MSHA regulations enforce mandatory standards under the Federal Mine Safety and Health Act, including employee exposure to noise and dust, safe operation of fixed and mobile equipment, safe mining practices, employee training programs, and more.

#### **Geology**

Rock formations at the Dixie Lee Quarry and Extension Area include the Maynardville Limestone and Copper Ridge Dolomite. These formations were deposited in flat layers between 490 and 520 Million years ago, while East Tennessee was covered by a warm shallow sea. Tectonic mountain building forces have tilted and folded the flat layers into often steeply dipping

and folded beds of limestone and dolomite that produce high-quality construction aggregate material today.

The steeply dipping and folded layers of the local geology, combined with continued growth and development of the surrounding community, mean that accessible and mineable geologic deposits are found in very limited locations.

The Quarry Extension contains a known mineable geologic deposit adjacent to an existing operating quarry and infrastructure, providing sensible continued access at an established site to a resource that is necessary to construct and maintain roads and other infrastructure in the community. Topsoil, clay and weathered rock and shale lie on top of the high quality dolomite and limestone that are mined and produced for construction aggregate. This material (collectively known as overburden) must be removed to access the high-quality marketable stone beneath.

### **Overburden Removal**

The overburden material will be removed by excavators or loaders and placed into haul trucks to build the proposed vegetated screening berms. Remaining overburden will be placed in mined out portions of the quarry site. Some pinnacles of very weathered shale and rock beneath the topsoil and clay may require engineered, safe drilling and blasting before removal and placement in the quarry.

### **Buffer**

Adjacent properties not owned or controlled by Vulcan will be screened by a minimum 300-foot buffer, including a 100-foot undisturbed fenced area and a 200-foot vegetated berm like the existing berm along Buttermilk Road. If a realignment of Graybeal Road is worked out with Knox County as Vulcan has proposed, an additional 60-foot road right-of-way would make the overall buffer at least 360 feet from adjoining property owners. Under this option, the new road would be constructed concurrently with the screening berm.

Prior to extending the mining area onto the Quarry Extension, the vegetated screening berm will be constructed using onsite overburden material to provide visual and sound screening for neighbors. Topsoil will be removed and segregated for spreading on the berm prior to berm vegetation activities. There will be a minimum 100-foot buffer between the property line and the toe of the berm.

Once berm construction is complete and weather conditions are favorable for planting, the berm will hydroseeded with an appropriate TDOT permanent reclamation seed mix (specific mix will be dependent on planting date and weather conditions), or something similar including a fast-growing nurse crop mixed with deep rooted perennial grasses, but possibly intermixed with native grasses and wildflowers.

The existing screening berm along Buttermilk Road will be extended along the north and west sides of the Quarry Extension, as shown on the preliminary site plan map [Exhibit R 4.0].

Along the south/southeastern side of the Subject Property, a 450-foot wide buffer of trees and heavy vegetation will provide screening

The berm will be approximately 20-25 feet above ground level as generally depicted on the illustrative sightline drawing [**Exhibit R 8.0**], following the existing topography with planned slopes of 2 to 1. Stormwater runoff from the outer slopes of the berm will be captured in a bioswale situated along the toe of the berm and generally flow north and to the east, toward the low area at the southeast corner of the property, where it ultimately feeds into Hickory Creek, as it does today. Water captured on the interior mining area side of the berm will be routed into the Existing Quarry to be used for dust control and production. Water in the quarry is managed through an existing permitted water discharge point.

### **Safe Drilling and Blasting**

Efficient excavation of the limestone and dolomite requires engineered drilling and blasting. At the Dixie Lee Quarry, Vulcan uses a controlled drill-and-blast methodology. All blasting activities are conducted strictly under the supervision of a state-licensed blaster, and adhering to all applicable regulations. The blasts are highly controlled, engineered events that last about a fraction of a second and occur during normal business hours.

Blasting in Tennessee is regulated by the State Fire Marshal's office under the Tennessee Blasting Standards Act, which sets requirements for procedures, limits, monitoring, record keeping and reporting. The limits follow U.S. Bureau of Mines safety standards that are scientifically proven to be safe. Scientific research has extensively shown that if the blasting activities do not produce vibration levels that exceed the limits set by the U.S. Bureau of Mines, the cosmetic damage potential (and thereby structural damage potential) from blasting is zero.

Each blast design is individually engineered to account for the geology, geometry and location. Engineers use laser profiling and digital modeling to predict specific shot behavior that is within ranges far below the permitted safety limits proven to be safe.

Drilling is conducted by in-house drillers to meet the specified design. Various technologies and methodologies are used to ensure drilling is completed to plan. Each hole is logged to document rock conditions including clay and voids that might be encountered during drilling. Blasters review all driller logs before loading each shot. Vulcan uses 3D profiling, borehole tracking and GPS-enabled drilling technologies that are employed as needed at the site, under direction of the Manager of Drilling and Blasting.

Vulcan is required to monitor each blast at a distance no farther than the closest off-site regularly occupied structure not owned or leased by Vulcan. A network of seismographs measures ground vibration and air blast overpressure and reports the data to our engineers and operations team in real-time.

Blasting operations generally occur up to 1-2 times per week during normal business hours, although this frequency is subject to adjustment based on site development needs, proximity to nearby structures, and seasonal market demand. No blasting will occur on Sundays

or Federal holidays. Vulcan offers phone notification to neighbors who would like to be contacted in advance of a blast.

Each engineered blast is monitored for vibration and air overpressure at least as close as the nearest residential structure. This monitoring is performed by a third-party vibration expert consultant, and the records maintained for review upon request by the State Fire Marshal's office. Vulcan's blasting results at the Existing Quarry are in full compliance with State limits and have been for many years. The Quarry Extension will be administered in accordance with the same regulations and follow the same proven operational best practices and procedures.

### **General Mining Operations**

Mining activities on the Quarry Extension will be limited to berm construction and vegetation, overburden removal, and mine excavation activities that include drilling, safe blasting, loading and hauling to the Existing Quarry which hosts the processing plant, office, maintenance shop, office, product stockpiles, access driveways, tenant sites, and other associated quarry uses.

Per Knox County Code of Ordinances, Part II, Article 4.50.02, B.9, and the conditions imposed by the County in response to Vulcan's 2009 Use on Review application: (i) the construction of the berm is to be limited to the hours between 7:00AM and 6:00PM; (ii) all blasting associated with the quarrying operation shall be permitted between 9:00AM and 4:00PM, Monday through Friday only; and (iii) all other quarry operations within the portion of the site that is zoned A (Agricultural) must be limited to the hours of 7:00AM and 9:00PM, Monday through Saturday.

### **Water Quality**

Water quality is regulated by the Tennessee Department of Environmental & Conservation (TDEC). Water is collected in the quarry and allowed to settle in ponds before re-use or discharge. Primary sources of water include stormwater runoff, groundwater, plant wash water, and dust suppression water. Water is treated in the Existing Quarry and discharged under permit number TN0026484. Discharge water is tested for total suspended solids and pH, per permit conditions. Spill prevention and stormwater management plans are also in place to protect water quality.

### **Air Quality**

Air quality at the Existing Quarry is regulated under permit number 21-0138. Air quality at rock crushers, screens, and conveyor transfer points in the processing plant is controlled with water spray technology. The processing plant will remain on the Existing Quarry site, and will stay in its current location near Everett Road. Dust from existing paved and unpaved roadways is suppressed with use of a water truck. The Quarry Extension will adhere to the same regulations and procedures.

### **Reclamation**

Upon completion of mining activities at the Dixie Lee Quarry, final reclamation on the Quarry Extension will consist of slope stabilization where needed to control erosion, stormwater management and general equipment removal and cleanup. The goal of reclamation will be to leave the site in a safe, environmentally sound condition that has future land value. The specific land uses will be dependent on future needs of the area once mining is complete, which today is estimated at 50+ years in the future and based on market demand.



February 2, 2026

Mr. Jim Snowden  
Knox County  
Engineering & Public Works  
205 W. Baxter Avenue  
Knoxville TN 37917

RE: Transportation Impact Letter  
Graybeal Road Closure  
Knoxville, Tennessee

Dear Mr. Snowden:

This correspondence provides a summary of conclusions reached regarding an assessment of the proposed road closure of Graybeal Road between Buttermilk Road and Pittman Drive. Specifically, the assessment will evaluate the existing conditions of Graybeal Road and the intersection capacity during existing and rerouted conditions.

The Vulcan Materials Company has an existing facility located at 1716 Everett Road in Knox County, Tennessee. The Dixie Lee Vulcan facility is a full-scale mining operation and quarry where raw materials are mined and processed. This facility can produce a wide range of products, including various sizes of crushed stone, base material, and fines, which are all essential components for construction projects. Vulcan Materials Company is currently planning an expansion at their Dixie Lee Vulcan facility to the property east of Graybeal Road and is requesting that Graybeal Road be closed between Buttermilk Road and Pittman Drive.

#### **EXISTING SITE CONDITIONS**

Buttermilk Road is a two-lane, two-way road at the intersection with Graybeal Road with an approximate width of 18 feet. Knoxville-Knox County Planning classifies Buttermilk Road between Hickory Creek Road and Marietta Church Road as a Minor Collector with a 60-foot right-of-way per the Major Road Plan. The posted speed limit on Buttermilk Road is 30 mph.

Yarnell Road is a two-lane, two-way road at the intersection with Graybeal Road with an approximate width of 20 feet. Knoxville-Knox County Planning classifies Yarnell Road between Everett Road and Lovell Road as a Major Collector with a 60-foot right-of-way per the Major Road Plan. The posted speed limit on Yarnell Road is 40 mph.

Graybeal Road is two-lane, two-way road between Buttermilk Road and Yarnell Road with an approximate width of 14 feet. Knoxville-Knox County Planning does not classify Graybeal Road; therefore, it is considered a Local Street. There is no posted speed limit on Graybeal Road.

Pittman Drive is a two-lane, two-way road at the intersection with Graybeal Road with an approximate width of 14 feet. Knoxville-Knox County Planning does not classify Pittman Drive; therefore, it is considered a Local Street. The posted speed limit on Pittman Drive is 30 mph.

**EXHIBIT**  
**6.0**



## EXISTING SITE ACCESS

There are currently five parcels that have direct access to Graybeal Road between Buttermilk Road and Pittman Drive.

- **Parcel ID 129 081** is located at the northeast corner of Buttermilk Road at Graybeal Road at 12612 Buttermilk Road. This parcel has existing driveway access to both Buttermilk Road and Graybeal Road.
- **Parcel ID 129 08103** is located approximately 460 feet east of the intersection of Buttermilk Road at Graybeal Road at 1814 Graybeal Road. This parcel has an existing driveway with access to Graybeal Road.
- **Parcel ID 129 080** is located east of Graybeal Road between Buttermilk Road and Pittman Drive and is owned by Vulcan Lands Inc.
- **Parcel ID 129 08001** is also located east of Graybeal Road between Buttermilk Road and Pittman Drive and is owned by Vulcan Lands Inc.
- **Parcel ID 141 04201** is located at the northeast corner of the intersection of Graybeal Road at Pittman Drive and has existing driveway access to both Graybeal Road and Pittman Drive.

The Dixie Lee Vulcan facility has three existing access points to Everett Road including a main entrance and two secondary access points for construction vehicles. There is also an existing access point to the facility to Graybeal Road but that access has been closed with a locked gate and a signs posted by Vulcan Materials Company that state "Danger Industrial Hazard No Trespassing Keep Out". There is currently no planned access to Graybeal Road as a part of the future expansion to the property east of Graybeal Road and all future access will continue to be from Everett Road.

## DATA COLLECTION AND BACKGROUND GROWTH

Existing traffic data was gathered for this study. Annual average daily traffic data (AADT) collected by the Knoxville Regional Transportation Planning Organization (TPO) on roadways in the area of the proposed development were utilized. Three count stations, one located on Yarnell Road east of Marietta Church Road, Buttermilk Road east of Everett Road and Marietta Church Road south of Hardin Valley Road, were felt to have relevance for this study. The most currently available data from these count stations is contained in TABLE 1.

In addition to the available AADT data, Intersection turning movement traffic counts were conducted in December 2025 at the study intersections of Buttermilk Road at Graybeal Road, Pittman Drive at Graybeal Road and Yarnell Road at Graybeal Road with the primary purpose of determining the current peak hour operating volumes. The 2025 traffic volumes are summarized in FIGURE 1 attached at the end of this letter for the A.M. and P.M. peak traffic hours.

For the purpose of evaluating the effects of the Graybeal Road closure on the surrounding roadway network it is assumed that the road closure will take place in the year 2026.



TABLE 1  
ANNUAL AVERAGE DAILY TRAFFIC COUNT SUMMARY

| COUNT YEAR | KNOX TPO COUNT STATION 093M384 YARNELL ROAD EAST OF MARIETTA CHURCH | KNOX TPO COUNT STATION 093M276 BUTTERMILK ROAD EAST OF EVERETT ROAD | KNOX TPO COUNT STATION 093M275 MARIETTA CHURCH ROAD SOUTH OF HARDIN VALLEY ROAD |
|------------|---------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 2024       | 3,560                                                               | -                                                                   | -                                                                               |
| 2023       |                                                                     | 510                                                                 | 2,350                                                                           |
| 2022       | 2,530                                                               | 530                                                                 | -                                                                               |
| 2021       |                                                                     | -                                                                   | 1,990                                                                           |
| 2020       |                                                                     | -                                                                   | 1,470                                                                           |
| 2019       | 2,070                                                               | 490                                                                 | 2,050                                                                           |
| 2018       |                                                                     | -                                                                   | -                                                                               |
| 2017       |                                                                     | 520                                                                 | 1,670                                                                           |
| 2016       | 1,720                                                               | -                                                                   | -                                                                               |
| 2015       |                                                                     | 530                                                                 | 1,440                                                                           |
| 2014       |                                                                     | -                                                                   | -                                                                               |
| 2013       |                                                                     | 450                                                                 | 1,320                                                                           |
| 2012       |                                                                     | -                                                                   | -                                                                               |
| 2011       |                                                                     | 380                                                                 | 1,100                                                                           |

## TRIP DISTRIBUTION

The proposed roadway closure of Graybeal Road between Buttermilk Road and Pittman Drive will cause a redistribution of existing thru traffic on Graybeal Road. These redistributed volumes can be seen in FIGURE 2.

The redistributed roadway trips in FIGURE 2 were combined with the existing intersection volumes in FIGURE 1. FIGURE 3 represents the 2026 combined traffic data with anticipated trips from the roadway closure. The volumes shown in FIGURE 3 are the combined volumes used in the analysis for the future conditions.

## CAPACITY ANALYSES

Unsignalized intersection capacity analyses were performed using the HCS2024 Software at the studied intersections to evaluate the AM and PM peak hours for the existing and redistributed conditions. The analyses were performed with the 2025 existing traffic volumes and existing intersection traffic control and lane configurations.

The results from the analyses are expressed with a term "level of service" (LOS), which is based on the amount of delay experienced at the intersection. The LOS index ranges from LOS A, indicating excellent traffic conditions with minimal delay, to LOS F indicating very congested conditions with excessive delay. LOS D generally is considered the minimum acceptable condition in urban areas.



TABLE 2 may be referenced for tabular summaries of these analyses, while more detailed summaries are presented on the attached computer printouts.

| TABLE 2<br>CAPACITY ANALYSIS SUMMARY                                |             |                                       |                                            |
|---------------------------------------------------------------------|-------------|---------------------------------------|--------------------------------------------|
| INTERSECTION                                                        | TIME PERIOD | YEAR 2025<br>EXISTING<br>(LOS/ DELAY) | YEAR 2026<br>REDISTRIBUTION<br>(LOS/DELAY) |
| Buttermilk Road at Graybeal Road<br>(SIDE STREET STOP) <sup>1</sup> | A.M.        | A 8.7                                 | N/A                                        |
|                                                                     | P.M.        | A 8.7                                 | N/A                                        |
| Graybeal Road at Pittman Drive<br>(SIDE STREET STOP) <sup>1</sup>   | A.M.        | A 8.6                                 | A 8.8                                      |
|                                                                     | P.M.        | A 8.5                                 | A 8.8                                      |
| Yarnell Road at Graybeal Road<br>(SIDE STREET STOP) <sup>1</sup>    | A.M.        | B 12.6                                | B 12.6                                     |
|                                                                     | P.M.        | A 9.8                                 | A 9.8                                      |

<sup>1</sup>SIDE STREET STOP CONTROL – Level of Service and Average Vehicular Delay (seconds) for side street approach utilizing HCM methodology.

The analysis indicates that the minor street approach at the intersections of Buttermilk Road at Graybeal Road, Graybeal Road at Pittman Drive and Yarnell Road at Graybeal Road currently operate at a Level of-Service (LOS) "B" or better during both the A.M. and P.M. peak hours and will continue to operate at an acceptable level of service after the closure of Graybeal Road between Buttermilk Road and Pittman Drive.

## CONCLUSION

The primary conclusion of this evaluation is that the proposed roadway closure of Graybeal Road between Buttermilk Road and Pittman Drive will not cause any additional delay to the roadway network as a result of re-routing traffic.

CCI recommends that the proposed Graybeal Road closure begins at the property line for Parcel ID 129 080, owned by Vulcan Lands Inc., to preserve the existing driveway access to the properties located just east of the intersection of Buttermilk Road at Graybeal Road. The length of the proposed road closure would include approximately 3,400 LF of existing roadway measured between the corner of Parcel ID 1290 080 and the intersection of Graybeal Road at Pittman Drive.

CCI recommends adding a "NO OUTLET" W-14-2a sign to the existing street signpost located at the intersection Buttermilk Road at Graybeal Road and a "DEAD END" W-14-1 with Type 4 Object Markers at the proposed dead-end on Graybeal Road. The construction of a turnaround meeting AASHTO guidelines and / or the Knoxville Fire Prevention Bureau and Knox County Codes Administration may be necessary in order to maintain access to the existing driveways on Graybeal Road.

Please let us know if you have questions or need additional information.

Sincerely,

Wesley Stokes, PE.

c: CCI Project No. 01949-0000.000  
Attachments: Figures & Capacity Analyses



Prepared by National Data & Surveying Services

## Buttermilk Rd & Graybeal Rd

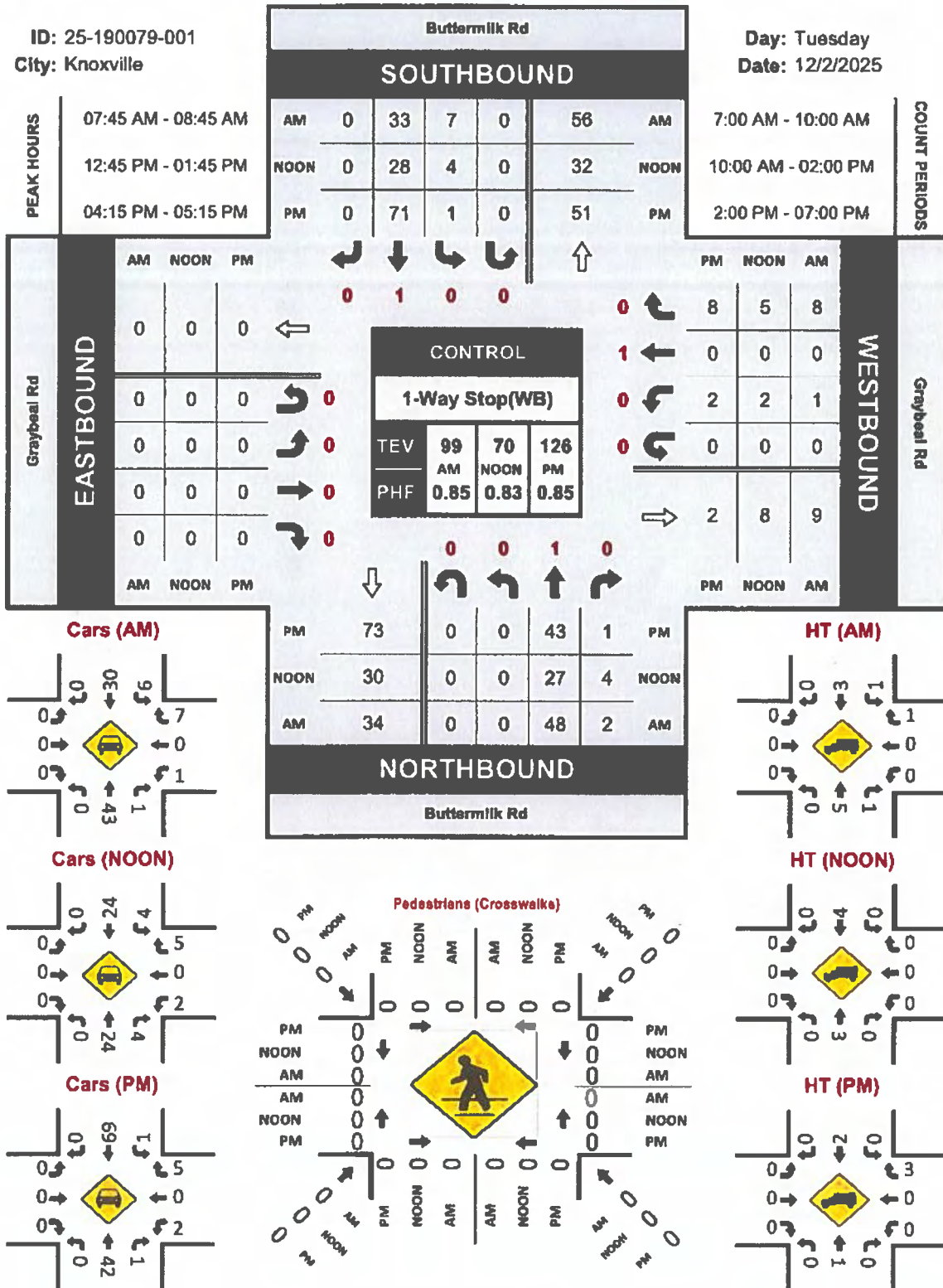
### Peak Hour Turning Movement Count

ID: 25-190079-001

City: Knoxville

Day: Tuesday

Date: 12/2/2025



# National Data & Surveying Services

## Intersection Turning Movement Count

Location: Buttermilk Rd & Graybeal Rd  
City: Knoxville  
Control: T-Way Stop(WB)

Project ID: 25-190079-001  
Date: 12/2/2025

### Data - Total

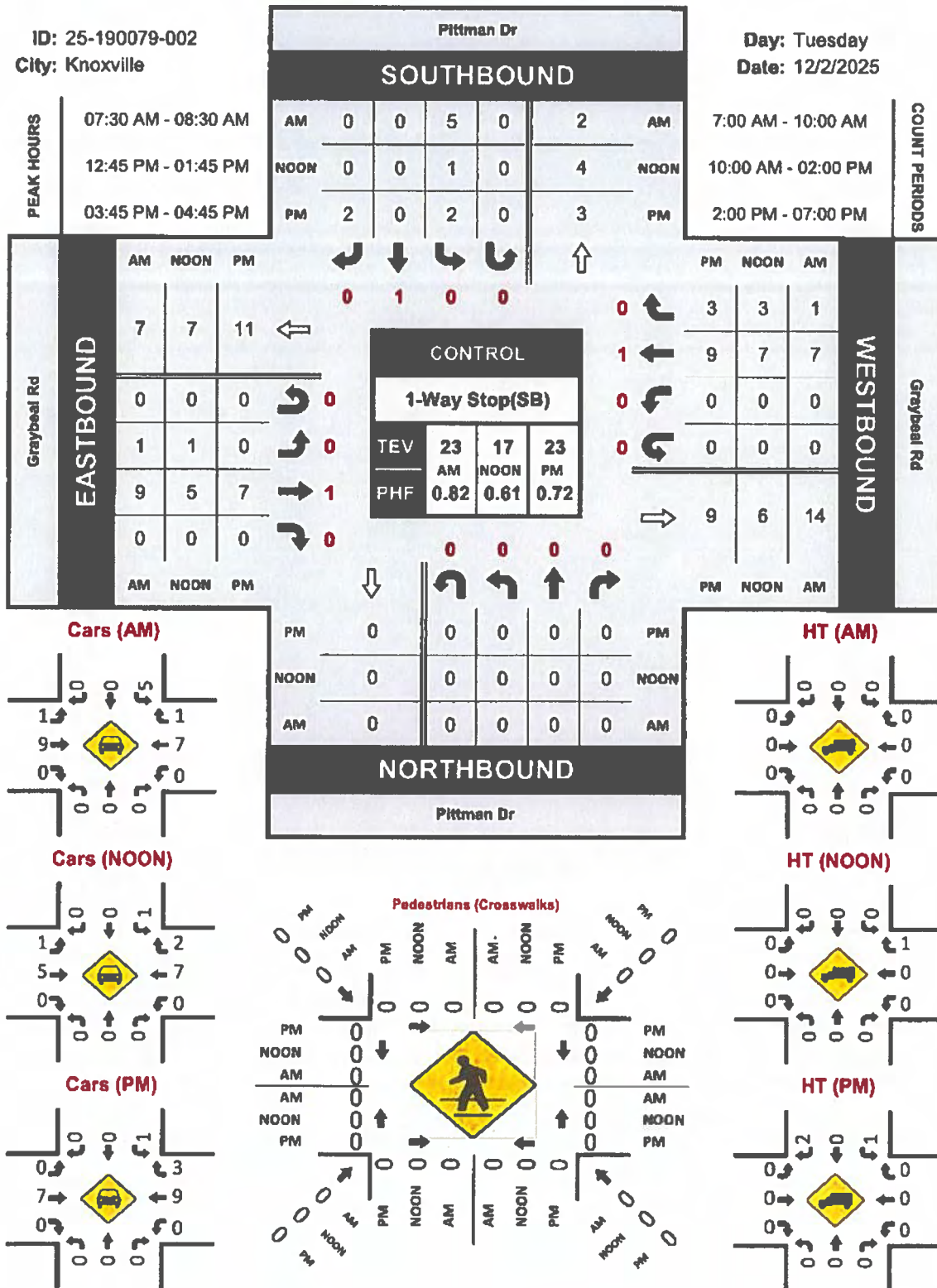
| NS/EW Streets:  | Buttermilk Rd |        |       |       | Buttermilk Rd |        |       |       | Graybeal Rd |       |       |       | Graybeal Rd |       |        |       |       |
|-----------------|---------------|--------|-------|-------|---------------|--------|-------|-------|-------------|-------|-------|-------|-------------|-------|--------|-------|-------|
| AM              | NORTHBOUND    |        |       |       | SOUTHBOUND    |        |       |       | EASTBOUND   |       |       |       | WESTBOUND   |       |        |       | TOTAL |
|                 | NL            | NT     | NR    | NU    | SL            | ST     | SR    | SU    | EL          | ET    | ER    | EU    | WL          | WT    | WR     | WU    |       |
| 7:00 AM         | 0             | 10     | 0     | 0     | 1             | 9      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 20    |
| 7:15 AM         | 0             | 10     | 0     | 0     | 2             | 12     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 24    |
| 7:30 AM         | 0             | 10     | 0     | 0     | 4             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 0      | 0     | 20    |
| 7:45 AM         | 0             | 14     | 0     | 0     | 2             | 6      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 3      | 0     | 25    |
| 8:00 AM         | 0             | 16     | 0     | 0     | 2             | 8      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 3      | 0     | 29    |
| 8:15 AM         | 0             | 10     | 1     | 0     | 1             | 8      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 21    |
| 8:30 AM         | 0             | 8      | 1     | 0     | 2             | 11     | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 1      | 0     | 24    |
| 8:45 AM         | 0             | 4      | 1     | 0     | 2             | 2      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 10    |
| 9:00 AM         | 0             | 6      | 0     | 0     | 0             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 0      | 0     | 12    |
| 9:15 AM         | 0             | 3      | 0     | 0     | 1             | 3      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 7     |
| 9:30 AM         | 0             | 5      | 0     | 0     | 1             | 2      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 2      | 0     | 10    |
| 9:45 AM         | 0             | 4      | 0     | 0     | 1             | 1      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 6     |
| TOTAL VOLUMES:  | NL            | NT     | NR    | NU    | SL            | ST     | SR    | SU    | EL          | ET    | ER    | EU    | WL          | WT    | WR     | WU    | TOTAL |
| APPROACH V/S:   | 0             | 100    | 3     | 0     | 19            | 72     | 0     | 0     | 0           | 0     | 0     | 0     | 3           | 0     | 11     | 0     | 208   |
| PEAK HR:        | 0.00%         | 97.09% | 2.91% | 0.00% | 20.88%        | 79.12% | 0.00% | 0.00% | 0.00%       | 0.00% | 0.00% | 0.00% | 21.43%      | 0.00% | 78.57% | 0.00% |       |
| PEAK HR VOL:    | 0             | 48     | 2     | 0     | 7             | 33     | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 8      | 0     | 99    |
| PEAK HR FACTOR: | 0.000         | 0.750  | 0.500 | 0.000 | 0.875         | 0.750  | 0.000 | 0.000 | 0.000       | 0.000 | 0.000 | 0.000 | 0.250       | 0.000 | 0.667  | 0.000 | 0.853 |
|                 | 0.781         |        |       |       | 0.769         |        |       |       |             |       |       |       | 0.750       |       |        |       |       |
| NOON            | NORTHBOUND    |        |       |       | SOUTHBOUND    |        |       |       | EASTBOUND   |       |       |       | WESTBOUND   |       |        |       | TOTAL |
|                 | NL            | NT     | NR    | NU    | SL            | ST     | SR    | SU    | EL          | ET    | ER    | EU    | WL          | WT    | WR     | WU    |       |
| 10:00 AM        | 0             | 1      | 0     | 0     | 0             | 3      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 4     |
| 10:15 AM        | 0             | 5      | 1     | 0     | 0             | 4      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 11    |
| 10:30 AM        | 0             | 2      | 0     | 0     | 2             | 4      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 8     |
| 10:45 AM        | 0             | 5      | 0     | 0     | 0             | 2      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 8     |
| 11:00 AM        | 0             | 8      | 1     | 0     | 0             | 4      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 13    |
| 11:15 AM        | 0             | 3      | 0     | 0     | 3             | 4      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 2      | 0     | 12    |
| 11:30 AM        | 0             | 4      | 1     | 0     | 2             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 0      | 0     | 13    |
| 11:45 AM        | 0             | 3      | 0     | 0     | 1             | 6      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 2      | 0     | 13    |
| 12:00 PM        | 0             | 5      | 0     | 0     | 0             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 10    |
| 12:15 PM        | 0             | 4      | 0     | 0     | 0             | 7      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 1      | 0     | 13    |
| 12:30 PM        | 0             | 8      | 0     | 0     | 1             | 3      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 12    |
| 12:45 PM        | 0             | 7      | 0     | 0     | 0             | 9      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 1      | 0     | 18    |
| 1:00 PM         | 0             | 9      | 3     | 0     | 0             | 7      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 2      | 0     | 21    |
| 1:15 PM         | 0             | 6      | 0     | 0     | 2             | 6      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 1      | 0     | 16    |
| 1:30 PM         | 0             | 5      | 1     | 0     | 2             | 6      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 15    |
| 1:45 PM         | 0             | 3      | 1     | 0     | 2             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 12    |
| TOTAL VOLUMES:  | NL            | NT     | NR    | NU    | SL            | ST     | SR    | SU    | EL          | ET    | ER    | EU    | WL          | WT    | WR     | WU    | TOTAL |
| APPROACH V/S:   | 0             | 78     | 8     | 0     | 15            | 80     | 0     | 0     | 0           | 0     | 0     | 0     | 5           | 0     | 13     | 0     | 199   |
| PEAK HR:        | 0.00%         | 90.70% | 9.30% | 0.00% | 15.79%        | 84.21% | 0.00% | 0.00% | 0.00%       | 0.00% | 0.00% | 0.00% | 27.78%      | 0.00% | 72.22% | 0.00% |       |
| PEAK HR VOL:    | 0             | 27     | 4     | 0     | 4             | 28     | 0     | 0     | 0           | 0     | 0     | 0     | 2           | 0     | 5      | 0     | 70    |
| PEAK HR FACTOR: | 0.000         | 0.750  | 0.333 | 0.000 | 0.500         | 0.778  | 0.000 | 0.000 | 0.000       | 0.000 | 0.000 | 0.000 | 0.500       | 0.000 | 0.625  | 0.000 | 0.833 |
|                 | 0.646         |        |       |       | 0.889         |        |       |       |             |       |       |       | 0.875       |       |        |       |       |
| PM              | NORTHBOUND    |        |       |       | SOUTHBOUND    |        |       |       | EASTBOUND   |       |       |       | WESTBOUND   |       |        |       | TOTAL |
|                 | NL            | NT     | NR    | NU    | SL            | ST     | SR    | SU    | EL          | ET    | ER    | EU    | WL          | WT    | WR     | WU    |       |
| 2:00 PM         | 0             | 7      | 0     | 0     | 0             | 7      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 3      | 0     | 17    |
| 2:15 PM         | 0             | 9      | 1     | 0     | 1             | 6      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 18    |
| 2:30 PM         | 0             | 12     | 1     | 0     | 2             | 3      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 3      | 0     | 21    |
| 2:45 PM         | 0             | 4      | 0     | 0     | 0             | 2      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 0      | 0     | 7     |
| 3:00 PM         | 0             | 5      | 0     | 0     | 2             | 7      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 1      | 0     | 16    |
| 3:15 PM         | 0             | 7      | 0     | 0     | 1             | 7      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 2      | 0     | 18    |
| 3:30 PM         | 0             | 7      | 0     | 0     | 0             | 7      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 3      | 0     | 17    |
| 3:45 PM         | 0             | 8      | 1     | 0     | 0             | 12     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 4      | 0     | 25    |
| 4:00 PM         | 0             | 8      | 1     | 0     | 2             | 20     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 2      | 0     | 33    |
| 4:15 PM         | 0             | 11     | 0     | 0     | 0             | 16     | 0     | 0     | 0           | 0     | 0     | 0     | 2           | 0     | 1      | 0     | 30    |
| 4:30 PM         | 0             | 10     | 1     | 0     | 0             | 20     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 2      | 0     | 33    |
| 4:45 PM         | 0             | 10     | 0     | 0     | 0             | 14     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 2      | 0     | 26    |
| 5:00 PM         | 0             | 12     | 0     | 0     | 1             | 21     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 3      | 0     | 37    |
| 5:15 PM         | 0             | 5      | 1     | 0     | 1             | 11     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 18    |
| 5:30 PM         | 0             | 15     | 1     | 0     | 1             | 10     | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 27    |
| 5:45 PM         | 0             | 10     | 1     | 0     | 0             | 8      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 20    |
| 6:00 PM         | 0             | 9      | 0     | 0     | 1             | 8      | 0     | 0     | 0           | 0     | 0     | 0     | 1           | 0     | 1      | 0     | 20    |
| 6:15 PM         | 0             | 10     | 0     | 0     | 0             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 1      | 0     | 16    |
| 6:30 PM         | 0             | 8      | 0     | 0     | 0             | 6      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 14    |
| 6:45 PM         | 0             | 5      | 0     | 0     | 0             | 5      | 0     | 0     | 0           | 0     | 0     | 0     | 0           | 0     | 0      | 0     | 10    |
| TOTAL VOLUMES:  | NL            | NT     | NR    | NU    | SL            | ST     | SR    | SU    | EL          | ET    | ER    | EU    | WL          | WT    | WR     | WU    | TOTAL |
| APPROACH V/S:   | 0             | 172    | 8     | 0     | 12            | 195    | 0     | 0     | 0           | 0     | 0     | 0     | 6           | 0     | 30     | 0     | 423   |
| PEAK HR:        | 0.00%         | 95.56% | 4.44% | 0.00% | 5.80%         | 94.20% | 0.00% | 0.00% | 0.00%       | 0.00% | 0.00% | 0.00% | 16.67%      | 0.00% | 83.33% | 0.00% |       |
| PEAK HR VOL:    | 0             | 43     | 1     | 0     | 1             | 71     | 0     | 0     | 0           | 0     | 0     | 0     | 2           | 0     | 8      | 0     | 126   |
| PEAK HR FACTOR: | 0.000         | 0.896  | 0.250 | 0.000 | 0.250         | 0.845  | 0.000 | 0.000 | 0.000       | 0.000 | 0.000 | 0.000 | 0.250       | 0.000 | 0.667  | 0.000 | 0.851 |
|                 | 0.917         |        |       |       | 0.818         |        |       |       |             |       |       |       | 0.813       |       |        |       |       |

# Pittman Dr & Graybeal Rd

## Peak Hour Turning Movement Count

ID: 25-190079-002  
City: Knoxville

Day: Tuesday  
Date: 12/2/2025



# National Data & Surveying Services

## Intersection Turning Movement Count

Location: Pittman Dr & Graybeal Rd  
City: Knoxville  
Control: T-Way Stop(SB)

Project ID: 25-190079-002  
Date: 12/2/2025

### Data - Total

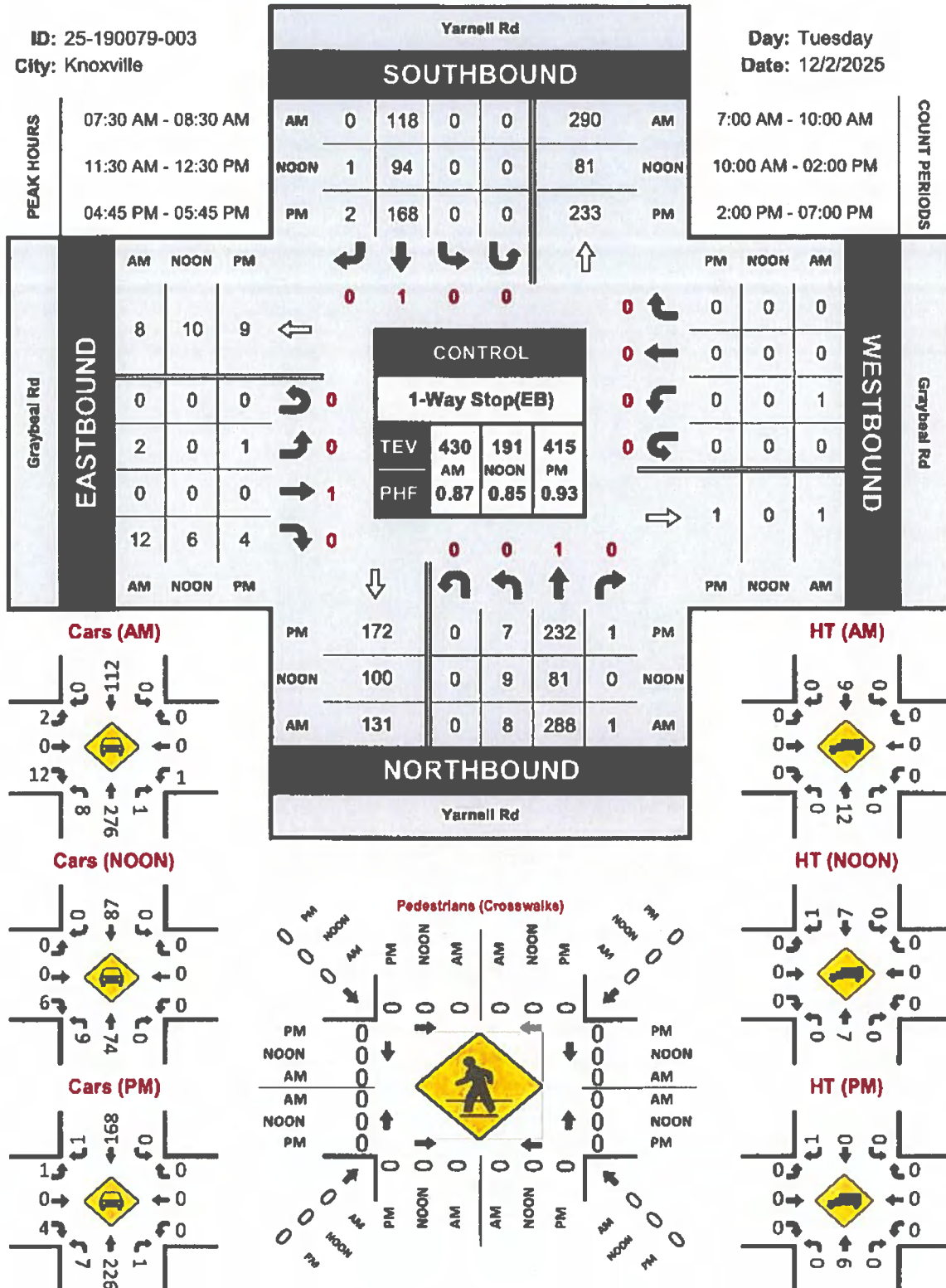
| NS/EW Streets:                 |          | Pittman Dr          |         |         |         | Pattman Dr |         |         |         | Graybeal Rd |          |         |         | Graybeal Rd |          |          |         |             |
|--------------------------------|----------|---------------------|---------|---------|---------|------------|---------|---------|---------|-------------|----------|---------|---------|-------------|----------|----------|---------|-------------|
| AM                             |          | NORTHBOUND          |         |         |         | SOUTHBOUND |         |         |         | EASTBOUND   |          |         |         | WESTBOUND   |          |          |         |             |
|                                |          | NL                  | NT      | NR      | NU      | SL         | ST      | SR      | SU      | EL          | ET       | ER      | EU      | WL          | WT       | WR       | WU      |             |
|                                | 7:00 AM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 0        | 0       | 2           |
|                                | 7:15 AM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 2        | 0       | 0       | 0           | 0        | 0        | 0       | 3           |
|                                | 7:30 AM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 4        | 0       | 0       | 0           | 2        | 0        | 0       | 7           |
|                                | 7:45 AM  | 0                   | 0       | 0       | 0       | 2          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 2        | 0        | 0       | 5           |
|                                | 8:00 AM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 3        | 0       | 0       | 0           | 2        | 0        | 0       | 6           |
|                                | 8:15 AM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 1           | 1        | 0       | 0       | 0           | 1        | 1        | 0       | 5           |
|                                | 8:30 AM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 1           | 1        | 0       | 0       | 0           | 1        | 0        | 0       | 4           |
|                                | 8:45 AM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 3        | 0       | 0       | 0           | 2        | 0        | 0       | 5           |
|                                | 9:00 AM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 0        | 1        | 0       | 1           |
|                                | 9:15 AM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 0        | 0       | 1           |
|                                | 9:30 AM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 2        | 0        | 0       | 3           |
|                                | 9:45 AM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 2        | 0       | 0       | 0           | 0        | 0        | 0       | 2           |
| TOTAL VOLUMES :<br>APPROACH %: |          | NL<br>0             | NT<br>0 | NR<br>0 | NU<br>0 | SL<br>8    | ST<br>0 | SR<br>0 | SU<br>0 | EL<br>2     | ET<br>20 | ER<br>0 | EU<br>0 | WL<br>0     | WT<br>12 | WR<br>2  | WU<br>0 | TOTAL<br>44 |
| PEAK HR :<br>PEAK HR FACTOR :  |          | 07:30 AM - 08:30 AM |         |         |         | 100.00%    | 0.00%   | 0.00%   | 0.00%   | 9.09%       | 90.91%   | 0.00%   | 0.00%   | 0.00%       | 85.71%   | 14.29%   | 0.00%   | TOTAL<br>23 |
|                                |          | 0                   | 0       | 0       | 0       | 5          | 0       | 0       | 0       | 1           | 9        | 0       | 0       | 0           | 7        | 1        | 0       | 0.821       |
|                                |          | 0.000               | 0.000   | 0.000   | 0.000   | 0.625      | 0.000   | 0.000   | 0.000   | 0.250       | 0.563    | 0.000   | 0.000   | 0.000       | 0.875    | 0.250    | 0.000   |             |
|                                |          |                     |         |         |         | 0.625      |         |         |         | 0.625       |          |         |         | 1.000       |          |          |         |             |
| NOON                           |          | NORTHBOUND          |         |         |         | SOUTHBOUND |         |         |         | EASTBOUND   |          |         |         | WESTBOUND   |          |          |         |             |
|                                |          | NL                  | NT      | NR      | NU      | SL         | ST      | SR      | SU      | EL          | ET       | ER      | EU      | WL          | WT       | WR       | WU      | TOTAL       |
|                                | 10:00 AM | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 0        | 0        | 0       | 1           |
|                                | 10:15 AM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 0        | 0        | 0       | 0           |
|                                | 10:30 AM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 2        | 0       | 0       | 0           | 0        | 1        | 0       | 3           |
|                                | 10:45 AM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 1        | 0        | 0       | 1           |
|                                | 11:00 AM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 0        | 0       | 1           |
|                                | 11:15 AM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 3        | 0       | 0       | 0           | 2        | 0        | 0       | 5           |
|                                | 11:30 AM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 3        | 0       | 0       | 0           | 1        | 0        | 0       | 4           |
|                                | 11:45 AM | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 3        | 0        | 0       | 5           |
|                                | 12:00 PM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 0        | 2        | 0       | 2           |
|                                | 12:15 PM | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 4        | 1        | 0       | 6           |
|                                | 12:30 PM | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 0        | 0       | 1           |
|                                | 12:45 PM | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 1           | 0        | 0       | 0       | 0           | 4        | 1        | 0       | 7           |
|                                | 1:00 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 0        | 0        | 0       | 0           |
|                                | 1:15 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 4        | 0       | 0       | 0           | 1        | 1        | 0       | 6           |
|                                | 1:30 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 2        | 1        | 0       | 4           |
|                                | 1:45 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 5        | 0       | 0       | 0           | 0        | 0        | 0       | 5           |
| TOTAL VOLUMES :<br>APPROACH %: |          | NL<br>0             | NT<br>0 | NR<br>0 | NU<br>0 | SL<br>4    | ST<br>0 | SR<br>0 | SU<br>0 | EL<br>1     | ET<br>21 | ER<br>0 | EU<br>0 | WL<br>0     | WT<br>18 | WR<br>7  | WU<br>0 | TOTAL<br>51 |
| PEAK HR :<br>PEAK HR FACTOR :  |          | 11:45 PM - 01:45 PM |         |         |         | 100.00%    | 0.00%   | 0.00%   | 0.00%   | 4.55%       | 95.45%   | 0.00%   | 0.00%   | 0.00%       | 72.00%   | 28.00%   | 0.00%   | TOTAL<br>17 |
|                                |          | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 1           | 5        | 0       | 0       | 0           | 7        | 3        | 0       | 0.607       |
|                                |          | 0.000               | 0.000   | 0.000   | 0.000   | 0.250      | 0.000   | 0.000   | 0.000   | 0.250       | 0.313    | 0.000   | 0.000   | 0.000       | 0.438    | 0.750    | 0.000   |             |
|                                |          |                     |         |         |         | 0.250      |         |         |         | 0.375       |          |         |         | 0.500       |          |          |         |             |
| PM                             |          | NORTHBOUND          |         |         |         | SOUTHBOUND |         |         |         | EASTBOUND   |          |         |         | WESTBOUND   |          |          |         |             |
|                                |          | NL                  | NT      | NR      | NU      | SL         | ST      | SR      | SU      | EL          | ET       | ER      | EU      | WL          | WT       | WR       | WU      | TOTAL       |
|                                | 2:00 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 1       | 0       | 0           | 2        | 0       | 0       | 0           | 2        | 1        | 0       | 6           |
|                                | 2:15 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 0        | 0       | 1           |
|                                | 2:30 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 3        | 0       | 0       | 0           | 3        | 0        | 0       | 6           |
|                                | 2:45 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 1        | 0        | 0       | 1           |
|                                | 3:00 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 2        | 0       | 0       | 0           | 2        | 1        | 0       | 5           |
|                                | 3:15 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 3        | 0        | 0       | 3           |
|                                | 3:30 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 3        | 1        | 0       | 4           |
|                                | 3:45 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 4        | 1        | 0       | 6           |
|                                | 4:00 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 3        | 1        | 0       | 5           |
|                                | 4:15 PM  | 0                   | 0       | 0       | 0       | 1          | 0       | 1       | 0       | 0           | 4        | 0       | 0       | 0           | 2        | 0        | 0       | 8           |
|                                | 4:30 PM  | 0                   | 0       | 0       | 0       | 1          | 0       | 1       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 1        | 0       | 4           |
|                                | 4:45 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 2        | 2        | 0       | 4           |
|                                | 5:00 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 3        | 0        | 0       | 4           |
|                                | 5:15 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 2        | 0       | 0       | 0           | 0        | 2        | 0       | 4           |
|                                | 5:30 PM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 0        | 0        | 0       | 2           |
|                                | 5:45 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 1        | 1        | 0       | 3           |
|                                | 6:00 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 1        | 0       | 0       | 0           | 1        | 0        | 0       | 2           |
|                                | 6:15 PM  | 0                   | 0       | 0       | 0       | 1          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 1        | 0        | 0       | 2           |
|                                | 6:30 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 0        | 0        | 0       | 0           |
|                                | 6:45 PM  | 0                   | 0       | 0       | 0       | 0          | 0       | 0       | 0       | 0           | 0        | 0       | 0       | 0           | 1        | 0        | 0       | 1           |
| TOTAL VOLUMES :<br>APPROACH %: |          | NL<br>0             | NT<br>0 | NR<br>0 | NU<br>0 | SL<br>4    | ST<br>0 | SR<br>3 | SU<br>0 | EL<br>0     | ET<br>21 | ER<br>0 | EU<br>0 | WL<br>0     | WT<br>32 | WR<br>11 | WU<br>0 | TOTAL<br>71 |
| PEAK HR :<br>PEAK HR FACTOR :  |          | 02:45 PM - 04:45 PM |         |         |         | 57.14%     | 0.00%   | 42.86%  | 0.00%   | 0.00%       | 100.00%  | 0.00%   | 0.00%   | 0.00%       | 74.42%   | 25.58%   | 0.00%   | TOTAL<br>23 |
|                                |          | 0                   | 0       | 0       | 0       | 2          | 0       | 2       | 0       | 0           | 7        | 0       | 0       | 0           | 9        | 3        | 0       | 0.719       |
|                                |          | 0.000               | 0.000   | 0.000   | 0.000   | 0.500      | 0.000   | 0.500   | 0.000   | 0.000       | 0.438    | 0.000   | 0.000   | 0.000       | 0.563    | 0.750    | 0.000   |             |
|                                |          |                     |         |         |         | 0.500      |         |         |         | 0.438       |          |         |         | 0.800       |          |          |         |             |

# Yarnell Rd & Graybeal Rd

## Peak Hour Turning Movement Count

ID: 25-190079-003  
City: Knoxville

Day: Tuesday  
Date: 12/2/2025



# National Data & Surveying Services

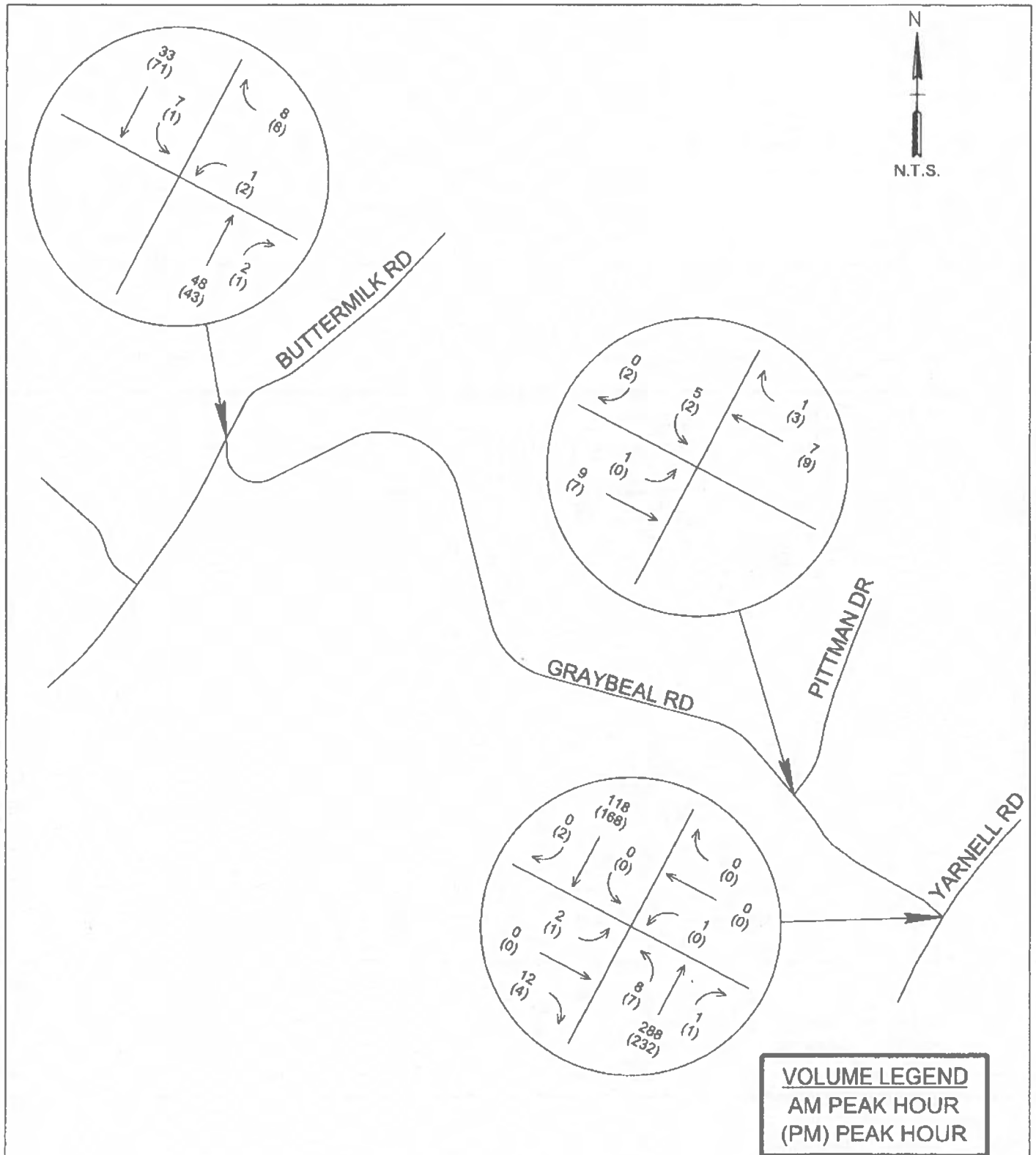
## Intersection Turning Movement Count

Location: Yarnell Rd & Graybeal Rd  
City: Knoxville  
Control: 1-Way Stop(EB)

Project ID: 25-190079-003  
Date: 12/2/2025

### Data - Total

| NS/EW Streets:  |          | Yarnell Rd          |        |       |       | Yarnell Rd |        |       |       | Graybeal Rd |       |        |       | Graybeal Rd |       |       |       |       |
|-----------------|----------|---------------------|--------|-------|-------|------------|--------|-------|-------|-------------|-------|--------|-------|-------------|-------|-------|-------|-------|
| AM              |          | NORTHBOUND          |        |       |       | SOUTHBOUND |        |       |       | EASTBOUND   |       |        |       | WESTBOUND   |       |       |       | TOTAL |
|                 |          | NL                  | NT     | NR    | NU    | SL         | ST     | SR    | SU    | EL          | ET    | ER     | EU    | WL          | WT    | WR    | WU    |       |
|                 | 7:00 AM  | 0                   | 30     | 0     | 0     | 0          | 13     | 0     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 45    |
|                 | 7:15 AM  | 0                   | 41     | 0     | 0     | 0          | 23     | 0     | 0     | 0           | 0     | 3      | 0     | 0           | 0     | 0     | 0     | 67    |
|                 | 7:30 AM  | 2                   | 75     | 0     | 0     | 0          | 41     | 0     | 0     | 0           | 0     | 5      | 0     | 0           | 0     | 0     | 0     | 123   |
|                 | 7:45 AM  | 2                   | 73     | 1     | 0     | 0          | 29     | 0     | 0     | 1           | 0     | 2      | 0     | 1           | 0     | 0     | 0     | 109   |
|                 | 8:00 AM  | 2                   | 77     | 0     | 0     | 0          | 21     | 0     | 0     | 1           | 0     | 3      | 0     | 0           | 0     | 0     | 0     | 104   |
|                 | 8:15 AM  | 2                   | 63     | 0     | 0     | 0          | 27     | 0     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 94    |
|                 | 8:30 AM  | 0                   | 55     | 0     | 0     | 0          | 29     | 1     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 87    |
|                 | 8:45 AM  | 1                   | 36     | 0     | 0     | 0          | 19     | 1     | 0     | 0           | 0     | 3      | 0     | 0           | 0     | 0     | 0     | 60    |
|                 | 9:00 AM  | 1                   | 33     | 0     | 0     | 0          | 14     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 48    |
|                 | 9:15 AM  | 0                   | 38     | 0     | 0     | 0          | 17     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 56    |
|                 | 9:30 AM  | 2                   | 30     | 0     | 1     | 0          | 18     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 51    |
|                 | 9:45 AM  | 1                   | 21     | 0     | 0     | 0          | 13     | 0     | 0     | 0           | 0     | 3      | 0     | 0           | 0     | 0     | 0     | 38    |
| TOTAL VOLUMES:  |          | NL                  | NT     | NR    | NU    | SL         | ST     | SR    | SU    | EL          | ET    | ER     | EU    | WL          | WT    | WR    | WU    | TOTAL |
| APPROACH %:     |          | 13                  | 572    | 1     | 1     | 0          | 264    | 2     | 0     | 2           | 0     | 26     | 0     | 1           | 0     | 0     | 0     | 892   |
| PEAK HR:        |          | 07:00 AM - 08:30 AM |        |       |       | 07:45      |        |       |       | 7.14%       |       |        |       | 92.86%      |       |       |       | TOTAL |
| PEAK HR VOL:    |          | 8                   | 288    | 1     | 0     | 0          | 118    | 0     | 0     | 2           | 0     | 12     | 0     | 1           | 0     | 0     | 0     | 430   |
| PEAK HR FACTOR: |          | 1.000               | 0.935  | 0.250 | 0.000 | 0.000      | 0.720  | 0.000 | 0.000 | 0.500       | 0.000 | 0.600  | 0.000 | 0.250       | 0.000 | 0.000 | 0.000 | 0.674 |
|                 |          | 0.940               |        |       |       | 0.720      |        |       |       | 0.700       |       |        |       | 0.250       |       |       |       |       |
| NOON            |          | NORTHBOUND          |        |       |       | SOUTHBOUND |        |       |       | EASTBOUND   |       |        |       | WESTBOUND   |       |       |       | TOTAL |
|                 |          | NL                  | NT     | NR    | NU    | SL         | ST     | SR    | SU    | EL          | ET    | ER     | EU    | WL          | WT    | WR    | WU    |       |
|                 | 10:00 AM | 0                   | 20     | 0     | 0     | 0          | 17     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 38    |
|                 | 10:15 AM | 0                   | 15     | 0     | 0     | 0          | 14     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 29    |
|                 | 10:30 AM | 0                   | 14     | 0     | 0     | 0          | 11     | 1     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 28    |
|                 | 10:45 AM | 1                   | 19     | 0     | 0     | 0          | 18     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 38    |
|                 | 11:00 AM | 0                   | 12     | 0     | 0     | 0          | 13     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 26    |
|                 | 11:15 AM | 2                   | 13     | 0     | 0     | 0          | 11     | 0     | 0     | 1           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 29    |
|                 | 11:30 AM | 1                   | 27     | 0     | 0     | 0          | 25     | 0     | 0     | 0           | 0     | 3      | 0     | 0           | 0     | 0     | 0     | 56    |
|                 | 11:45 AM | 2                   | 16     | 0     | 0     | 0          | 19     | 0     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 40    |
|                 | 12:00 PM | 2                   | 23     | 0     | 0     | 0          | 26     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 51    |
|                 | 12:15 PM | 3                   | 15     | 0     | 0     | 0          | 24     | 1     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 44    |
|                 | 12:30 PM | 0                   | 20     | 1     | 0     | 0          | 25     | 0     | 0     | 0           | 0     | 1      | 0     | 1           | 0     | 0     | 0     | 48    |
|                 | 12:45 PM | 4                   | 13     | 0     | 0     | 0          | 17     | 0     | 0     | 2           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 36    |
|                 | 1:00 PM  | 0                   | 28     | 0     | 0     | 0          | 18     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 46    |
|                 | 1:15 PM  | 3                   | 29     | 0     | 0     | 0          | 16     | 0     | 0     | 0           | 0     | 4      | 0     | 0           | 0     | 0     | 0     | 52    |
|                 | 1:30 PM  | 2                   | 21     | 0     | 0     | 0          | 19     | 1     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 44    |
|                 | 1:45 PM  | 0                   | 24     | 0     | 0     | 0          | 20     | 0     | 0     | 0           | 0     | 4      | 0     | 0           | 0     | 0     | 0     | 48    |
| TOTAL VOLUMES:  |          | NL                  | NT     | NR    | NU    | SL         | ST     | SR    | SU    | EL          | ET    | ER     | EU    | WL          | WT    | WR    | WU    | TOTAL |
| APPROACH %:     |          | 6.34%               | 83.35% | 0.30% | 0.00% | 0.00%      | 98.99% | 1.01% | 0.00% | 12.00%      | 0.00% | 88.00% | 0.00% | 100.00%     | 0.00% | 0.00% | 0.00% | 653   |
| PEAK HR:        |          | 11:30 AM - 12:30 PM |        |       |       | 09:41      |        |       |       | 12.00%      |       |        |       | 100.00%     |       |       |       | TOTAL |
| PEAK HR VOL:    |          | 9                   | 81     | 0     | 0     | 0          | 94     | 1     | 0     | 0           | 0     | 6      | 0     | 0           | 0     | 0     | 0     | 191   |
| PEAK HR FACTOR: |          | 0.750               | 0.750  | 0.000 | 0.000 | 0.000      | 0.904  | 0.250 | 0.000 | 0.000       | 0.000 | 0.500  | 0.000 | 0.000       | 0.000 | 0.000 | 0.000 | 0.853 |
|                 |          | 0.804               |        |       |       | 0.913      |        |       |       | 0.500       |       |        |       |             |       |       |       |       |
| PM              |          | NORTHBOUND          |        |       |       | SOUTHBOUND |        |       |       | EASTBOUND   |       |        |       | WESTBOUND   |       |       |       | TOTAL |
|                 |          | NL                  | NT     | NR    | NU    | SL         | ST     | SR    | SU    | EL          | ET    | ER     | EU    | WL          | WT    | WR    | WU    |       |
|                 | 2:00 PM  | 3                   | 28     | 0     | 0     | 0          | 16     | 1     | 0     | 2           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 51    |
|                 | 2:15 PM  | 0                   | 32     | 0     | 0     | 0          | 12     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 45    |
|                 | 2:30 PM  | 3                   | 45     | 0     | 0     | 0          | 24     | 0     | 0     | 2           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 75    |
|                 | 2:45 PM  | 1                   | 37     | 0     | 0     | 0          | 27     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 65    |
|                 | 3:00 PM  | 2                   | 30     | 0     | 0     | 0          | 14     | 1     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 49    |
|                 | 3:15 PM  | 1                   | 25     | 0     | 0     | 0          | 27     | 1     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 55    |
|                 | 3:30 PM  | 4                   | 26     | 0     | 0     | 0          | 21     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 51    |
|                 | 3:45 PM  | 5                   | 24     | 0     | 0     | 0          | 30     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 60    |
|                 | 4:00 PM  | 3                   | 35     | 0     | 0     | 0          | 44     | 1     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 84    |
|                 | 4:15 PM  | 2                   | 36     | 0     | 0     | 0          | 37     | 1     | 0     | 1           | 0     | 4      | 0     | 0           | 0     | 0     | 0     | 81    |
|                 | 4:30 PM  | 0                   | 39     | 0     | 0     | 0          | 27     | 0     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 68    |
|                 | 4:45 PM  | 3                   | 47     | 0     | 0     | 0          | 46     | 1     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 97    |
|                 | 5:00 PM  | 2                   | 64     | 0     | 0     | 0          | 44     | 1     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 112   |
|                 | 5:15 PM  | 2                   | 55     | 1     | 0     | 0          | 44     | 0     | 0     | 1           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 104   |
|                 | 5:30 PM  | 0                   | 66     | 0     | 0     | 0          | 34     | 0     | 0     | 0           | 0     | 2      | 0     | 0           | 0     | 0     | 0     | 102   |
|                 | 5:45 PM  | 2                   | 47     | 1     | 0     | 0          | 37     | 0     | 0     | 0           | 0     | 1      | 0     | 2           | 0     | 0     | 0     | 90    |
|                 | 6:00 PM  | 1                   | 32     | 0     | 0     | 0          | 31     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 65    |
|                 | 6:15 PM  | 1                   | 16     | 0     | 0     | 0          | 26     | 0     | 0     | 0           | 0     | 1      | 0     | 0           | 0     | 0     | 0     | 44    |
|                 | 6:30 PM  | 0                   | 22     | 0     | 0     | 0          | 19     | 0     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 41    |
|                 | 6:45 PM  | 0                   | 11     | 0     | 0     | 0          | 14     | 1     | 0     | 0           | 0     | 0      | 0     | 0           | 0     | 0     | 0     | 26    |
| TOTAL VOLUMES:  |          | NL                  | NT     | NR    | NU    | SL         | ST     | SR    | SU    | EL          | ET    | ER     | EU    | WL          | WT    | WR    | WU    | TOTAL |
| APPROACH %:     |          | 4.77%               | 94.97% | 0.26% | 0.00% | 0.90%      | 98.63% | 1.37% | 0.00% | 23.08%      | 0.90% | 76.92% | 0.00% | 100.00%     | 0.00% | 0.00% | 0.00% | 1365  |
| PEAK HR:        |          | 04:45 PM - 05:45 PM |        |       |       | 09:41      |        |       |       | 23.08%      |       |        |       | 100.00%     |       |       |       | TOTAL |
| PEAK HR VOL:    |          | 7                   | 232    | 1     | 0     | 0          | 168    | 2     | 0     | 1           | 0     | 4      | 0     | 0           | 0     | 0     | 0     | 415   |
| PEAK HR FACTOR: |          | 0.583               | 0.879  | 0.250 | 0.000 | 0.000      | 0.913  | 0.500 | 0.000 | 0.250       | 0.000 | 0.500  | 0.000 | 0.000       | 0.000 | 0.000 | 0.000 | 0.916 |
|                 |          | 0.909               |        |       |       | 0.904      |        |       |       | 0.625       |       |        |       |             |       |       |       |       |

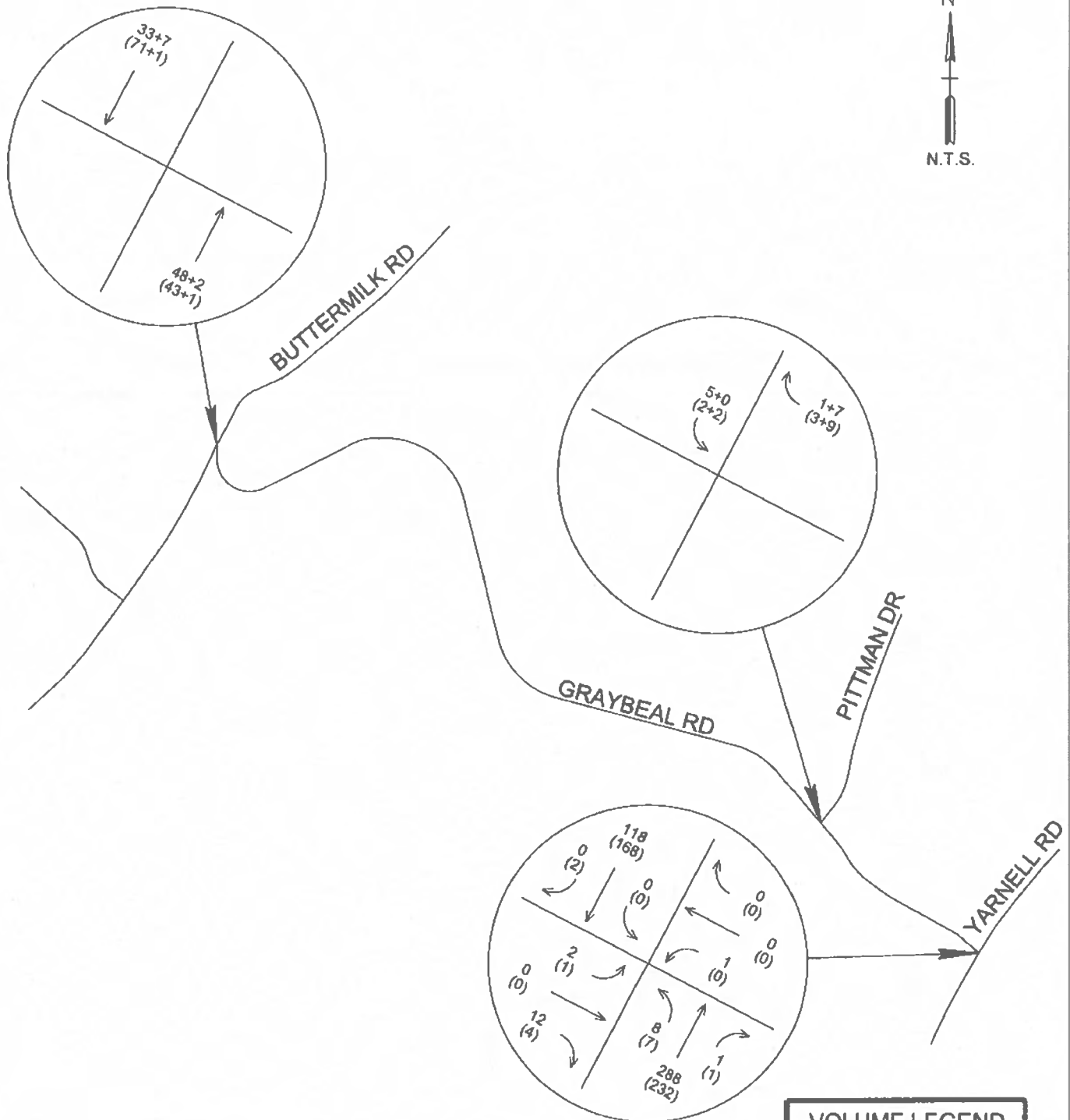


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**FIGURE 1**  
 EXISTING TRAFFIC VOLUMES (2025)

**GRAYBEAL ROAD CLOSURE  
 TRANSPORTATION IMPACT LETTER**



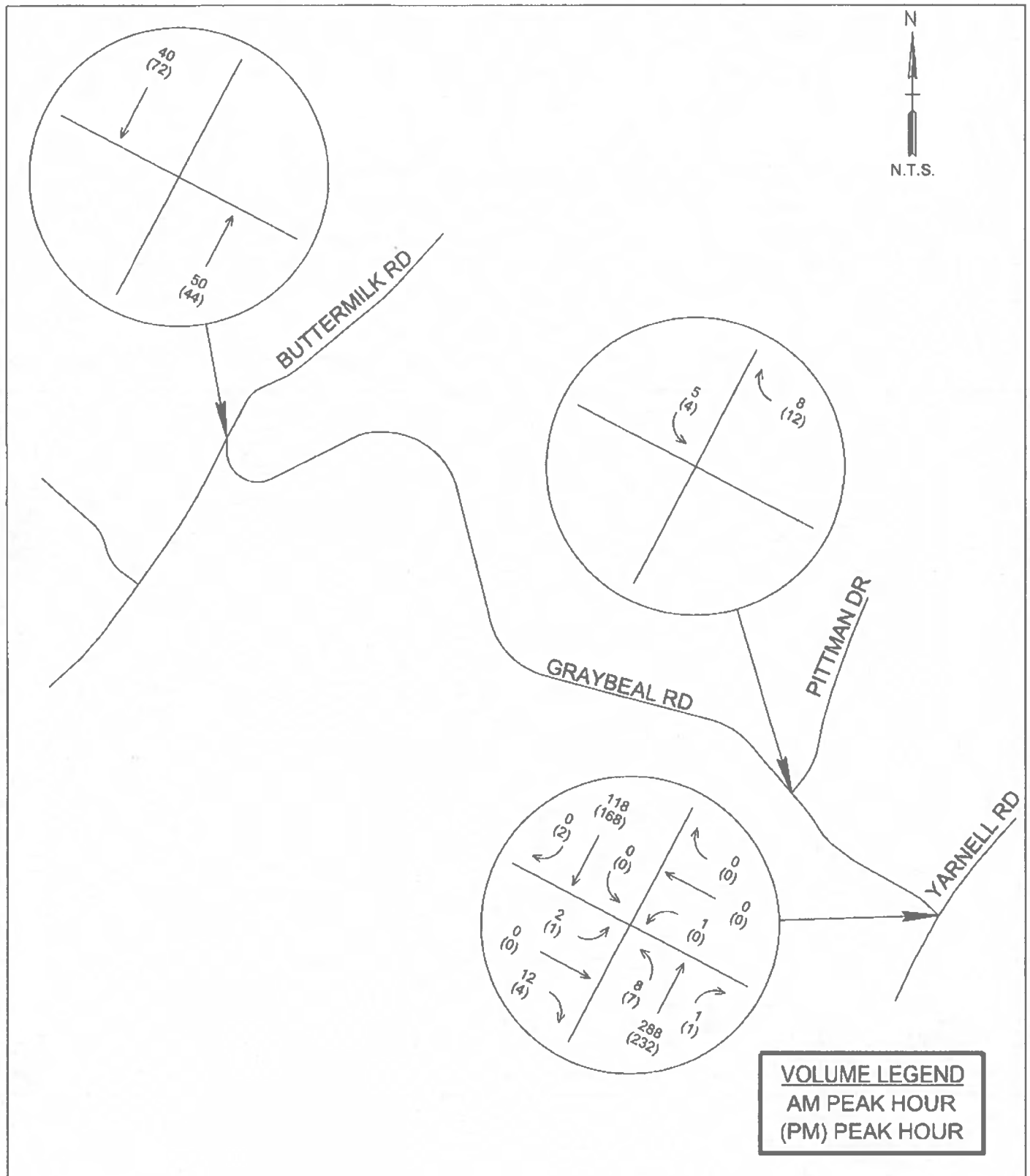
**NOTE:**  
 ASSUMES GRAYBEAL ROAD  
 CLOSURE BETWEEN BUTTERMILK  
 ROAD AND PITTMAN DRIVE.

**VOLUME LEGEND**  
 AM PEAK HOUR  
 (PM) PEAK HOUR



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**FIGURE 2**  
 REDISTRIBUTED VOLUMES (2026)  
 GRAYBEAL ROAD CLOSURE  
 TRANSPORTATION IMPACT LETTER



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**FIGURE 3**  
COMBINED VOLUMES (2026)

**GRAYBEAL ROAD CLOSURE  
TRANSPORTATION IMPACT LETTER**

# HCS Two-Way Stop-Control Report

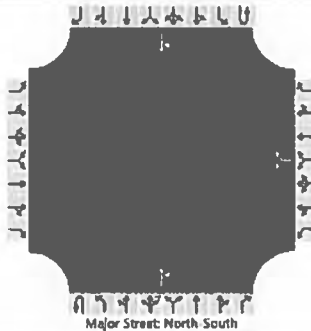
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Existing AM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                  |
|----------------------------|----------------------------------|
| Intersection               | Buttermilk Road at Graybeal Road |
| Jurisdiction               | Knox County                      |
| East/West Street           | Graybeal Road                    |
| North/South Street         | Buttermilk Road                  |
| Peak Hour Factor           | 0.85                             |
| Analysis Time Period (hrs) | 0.25                             |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |    |    | Westbound |   |    |   | Northbound |   |    |    | Southbound |    |    |   |
|----------------------------|-----------|----|----|----|-----------|---|----|---|------------|---|----|----|------------|----|----|---|
| Movement                   | U         | L  | T  | R  | U         | L | T  | R | U          | L | T  | R  | U          | L  | T  | R |
| Priority                   |           | 10 | 11 | 12 |           | 7 | 8  | 9 | 1U         | 1 | 2  | 3  | 4U         | 4  | 5  | 6 |
| Number of Lanes            |           | 0  | 0  | 0  |           | 0 | 1  | 0 | 0          | 0 | 1  | 0  | 0          | 0  | 1  | 0 |
| Configuration              |           |    |    |    |           |   | LR |   |            |   |    | TR |            | LT |    |   |
| Volume (veh/h)             |           |    |    |    |           | 1 |    | 8 |            |   | 48 | 2  |            | 7  | 33 |   |
| Percent Heavy Vehicles (%) |           |    |    |    |           | 2 |    | 2 |            |   |    |    |            | 2  |    |   |
| Proportion Time Blocked    |           |    |    |    |           |   |    |   |            |   |    |    |            |    |    |   |
| Percent Grade (%)          |           |    |    |    |           | 0 |    |   |            |   |    |    |            |    |    |   |
| Right Turn Channelized     |           |    |    |    |           |   |    |   |            |   |    |    |            |    |    |   |
| Median Type   Storage      | Undivided |    |    |    |           |   |    |   |            |   |    |    |            |    |    |   |

## Critical and Follow-up Headways

|                              |  |  |  |  |  |      |  |      |  |  |  |  |  |      |  |  |
|------------------------------|--|--|--|--|--|------|--|------|--|--|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  |  |  |  |  | 7.1  |  | 6.2  |  |  |  |  |  | 4.1  |  |  |
| Critical Headway (sec)       |  |  |  |  |  | 6.42 |  | 6.22 |  |  |  |  |  | 4.12 |  |  |
| Base Follow-Up Headway (sec) |  |  |  |  |  | 3.5  |  | 3.3  |  |  |  |  |  | 2.2  |  |  |
| Follow-Up Headway (sec)      |  |  |  |  |  | 3.52 |  | 3.32 |  |  |  |  |  | 2.22 |  |  |

## Delay, Queue Length, and Level of Service

|                                         |  |  |  |  |     |  |      |  |  |  |  |  |     |      |     |  |
|-----------------------------------------|--|--|--|--|-----|--|------|--|--|--|--|--|-----|------|-----|--|
| Flow Rate, v (veh/h)                    |  |  |  |  |     |  | 11   |  |  |  |  |  |     | 8    |     |  |
| Capacity, c (veh/h)                     |  |  |  |  |     |  | 992  |  |  |  |  |  |     | 1545 |     |  |
| v/c Ratio                               |  |  |  |  |     |  | 0.01 |  |  |  |  |  |     | 0.01 |     |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |  |  |  |     |  | 0.0  |  |  |  |  |  |     | 0.0  |     |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |  |  |  |     |  | 0.0  |  |  |  |  |  |     | 0.0  |     |  |
| Control Delay (s/veh)                   |  |  |  |  |     |  | 8.7  |  |  |  |  |  |     | 7.3  | 0.0 |  |
| Level of Service (LOS)                  |  |  |  |  |     |  | A    |  |  |  |  |  |     | A    | A   |  |
| Approach Delay (s/veh)                  |  |  |  |  | 8.7 |  |      |  |  |  |  |  | 1.3 |      |     |  |
| Approach LOS                            |  |  |  |  | A   |  |      |  |  |  |  |  | A   |      |     |  |

# HCS Two-Way Stop-Control Report

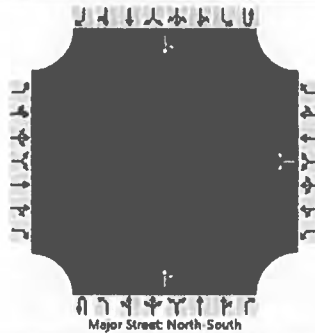
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Existing PM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                  |
|----------------------------|----------------------------------|
| Intersection               | Buttermilk Road at Graybeal Road |
| Jurisdiction               | Knox County                      |
| East/West Street           | Graybeal Road                    |
| North/South Street         | Buttermilk Road                  |
| Peak Hour Factor           | 0.85                             |
| Analysis Time Period (hrs) | 0.25                             |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |    |    | Westbound |   |    |   | Northbound |   |    |    | Southbound |    |    |   |
|----------------------------|-----------|----|----|----|-----------|---|----|---|------------|---|----|----|------------|----|----|---|
| Movement                   | U         | L  | T  | R  | U         | L | T  | R | U          | L | T  | R  | U          | L  | T  | R |
| Priority                   |           | 10 | 11 | 12 |           | 7 | 8  | 9 | 1U         | 1 | 2  | 3  | 4U         | 4  | 5  | 6 |
| Number of Lanes            |           | 0  | 0  | 0  |           | 0 | 1  | 0 | 0          | 0 | 1  | 0  | 0          | 0  | 1  | 0 |
| Configuration              |           |    |    |    |           |   | LR |   |            |   |    | TR |            | LT |    |   |
| Volume (veh/h)             |           |    |    |    |           | 2 |    | 8 |            |   | 43 | 1  |            | 1  | 71 |   |
| Percent Heavy Vehicles (%) |           |    |    |    |           | 2 |    | 2 |            |   |    |    |            | 2  |    |   |
| Proportion Time Blocked    |           |    |    |    |           |   |    |   |            |   |    |    |            |    |    |   |
| Percent Grade (%)          |           |    |    |    | 0         |   |    |   |            |   |    |    |            |    |    |   |
| Right Turn Channelized     |           |    |    |    |           |   |    |   |            |   |    |    |            |    |    |   |
| Median Type   Storage      |           |    |    |    | Undivided |   |    |   |            |   |    |    |            |    |    |   |

## Critical and Follow-up Headways

|                              |  |  |  |  |  |      |  |      |  |  |  |  |  |      |  |  |
|------------------------------|--|--|--|--|--|------|--|------|--|--|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  |  |  |  |  | 7.1  |  | 6.2  |  |  |  |  |  | 4.1  |  |  |
| Critical Headway (sec)       |  |  |  |  |  | 6.42 |  | 6.22 |  |  |  |  |  | 4.12 |  |  |
| Base Follow-Up Headway (sec) |  |  |  |  |  | 3.5  |  | 3.3  |  |  |  |  |  | 2.2  |  |  |
| Follow-Up Headway (sec)      |  |  |  |  |  | 3.52 |  | 3.32 |  |  |  |  |  | 2.22 |  |  |

## Delay, Queue Length, and Level of Service

|                                         |  |  |  |  |     |      |  |  |  |  |  |  |     |      |     |  |
|-----------------------------------------|--|--|--|--|-----|------|--|--|--|--|--|--|-----|------|-----|--|
| Flow Rate, v (veh/h)                    |  |  |  |  |     | 12   |  |  |  |  |  |  |     | 1    |     |  |
| Capacity, c (veh/h)                     |  |  |  |  |     | 980  |  |  |  |  |  |  |     | 1554 |     |  |
| v/c Ratio                               |  |  |  |  |     | 0.01 |  |  |  |  |  |  |     | 0.00 |     |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |  |  |  |     | 0.0  |  |  |  |  |  |  |     | 0.0  |     |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |  |  |  |     | 0.0  |  |  |  |  |  |  |     | 0.0  |     |  |
| Control Delay (s/veh)                   |  |  |  |  |     | 8.7  |  |  |  |  |  |  |     | 7.3  | 0.0 |  |
| Level of Service (LOS)                  |  |  |  |  |     | A    |  |  |  |  |  |  |     | A    | A   |  |
| Approach Delay (s/veh)                  |  |  |  |  | 8.7 |      |  |  |  |  |  |  | 0.1 |      |     |  |
| Approach LOS                            |  |  |  |  | A   |      |  |  |  |  |  |  | A   |      |     |  |

# HCS Two-Way Stop-Control Report

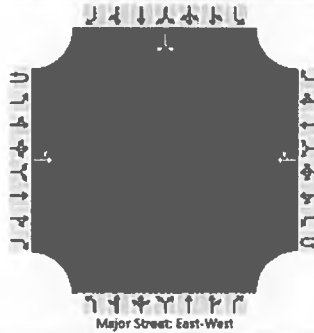
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Existing AM Peak          |
| Intersection Orientation | East-West                 |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                |
|----------------------------|--------------------------------|
| Intersection               | Pittman Drive at Graybeal Road |
| Jurisdiction               | Knox County                    |
| East/West Street           | Graybeal Road                  |
| North/South Street         | Pittman Drive                  |
| Peak Hour Factor           | 0.82                           |
| Analysis Time Period (hrs) | 0.25                           |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |   |   | Westbound |   |   |    | Northbound |   |   |   | Southbound |    |    |    |
|----------------------------|-----------|----|---|---|-----------|---|---|----|------------|---|---|---|------------|----|----|----|
| Movement                   | U         | L  | T | R | U         | L | T | R  | U          | L | T | R | U          | L  | T  | R  |
| Priority                   | 1U        | 1  | 2 | 3 | 4U        | 4 | 5 | 6  |            | 7 | 8 | 9 |            | 10 | 11 | 12 |
| Number of Lanes            | 0         | 0  | 1 | 0 | 0         | 0 | 1 | 0  |            | 0 | 0 | 0 |            | 0  | 1  | 0  |
| Configuration              |           | LT |   |   |           |   |   | TR |            |   |   |   |            |    | LR |    |
| Volume (veh/h)             |           | 1  | 9 |   |           |   | 7 | 1  |            |   |   |   |            | 5  |    | 0  |
| Percent Heavy Vehicles (%) |           | 2  |   |   |           |   |   |    |            |   |   |   |            | 2  |    | 2  |
| Proportion Time Blocked    |           |    |   |   |           |   |   |    |            |   |   |   |            |    |    |    |
| Percent Grade (%)          |           |    |   |   |           |   |   |    |            |   |   |   |            | 0  |    |    |
| Right Turn Channelized     |           |    |   |   |           |   |   |    |            |   |   |   |            |    |    |    |
| Median Type   Storage      |           |    |   |   |           |   |   |    |            |   |   |   |            |    |    |    |

## Critical and Follow-up Headways

|                              |  |      |  |  |  |  |  |  |  |  |  |  |  |      |  |      |
|------------------------------|--|------|--|--|--|--|--|--|--|--|--|--|--|------|--|------|
| Base Critical Headway (sec)  |  | 4.1  |  |  |  |  |  |  |  |  |  |  |  | 7.1  |  | 6.2  |
| Critical Headway (sec)       |  | 4.12 |  |  |  |  |  |  |  |  |  |  |  | 6.42 |  | 6.22 |
| Base Follow-Up Headway (sec) |  | 2.2  |  |  |  |  |  |  |  |  |  |  |  | 3.5  |  | 3.3  |
| Follow-Up Headway (sec)      |  | 2.22 |  |  |  |  |  |  |  |  |  |  |  | 3.52 |  | 3.32 |

## Delay, Queue Length, and Level of Service

|                                         |  |      |     |  |  |  |  |  |  |  |  |  |  |     |      |  |
|-----------------------------------------|--|------|-----|--|--|--|--|--|--|--|--|--|--|-----|------|--|
| Flow Rate, v (veh/h)                    |  | 1    |     |  |  |  |  |  |  |  |  |  |  |     | 6    |  |
| Capacity, c (veh/h)                     |  | 1610 |     |  |  |  |  |  |  |  |  |  |  |     | 993  |  |
| v/c Ratio                               |  | 0.00 |     |  |  |  |  |  |  |  |  |  |  |     | 0.01 |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  | 0.0  |     |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  | 0.0  |     |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |
| Control Delay (s/veh)                   |  | 7.2  | 0.0 |  |  |  |  |  |  |  |  |  |  |     | 8.6  |  |
| Level of Service (LOS)                  |  | A    | A   |  |  |  |  |  |  |  |  |  |  |     | A    |  |
| Approach Delay (s/veh)                  |  | 0.7  |     |  |  |  |  |  |  |  |  |  |  | 8.6 |      |  |
| Approach LOS                            |  | A    |     |  |  |  |  |  |  |  |  |  |  | A   |      |  |

# HCS Two-Way Stop-Control Report

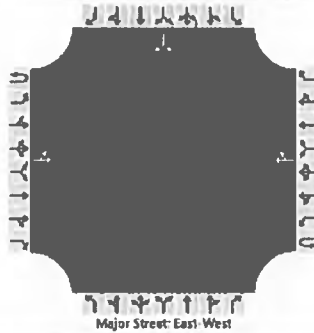
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Existing PM Peak          |
| Intersection Orientation | East-West                 |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                |
|----------------------------|--------------------------------|
| Intersection               | Pittman Drive at Graybeal Road |
| Jurisdiction               | Knox County                    |
| East/West Street           | Graybeal Road                  |
| North/South Street         | Pittman Drive                  |
| Peak Hour Factor           | 0.72                           |
| Analysis Time Period (hrs) | 0.25                           |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |   |   | Westbound |   |   |    | Northbound |   |   |   | Southbound |    |    |    |
|----------------------------|-----------|----|---|---|-----------|---|---|----|------------|---|---|---|------------|----|----|----|
| Movement                   | U         | L  | T | R | U         | L | T | R  | U          | L | T | R | U          | L  | T  | R  |
| Priority                   | 1U        | 1  | 2 | 3 | 4U        | 4 | 5 | 6  |            | 7 | 8 | 9 |            | 10 | 11 | 12 |
| Number of Lanes            | 0         | 0  | 1 | 0 | 0         | 0 | 1 | 0  |            | 0 | 0 | 0 |            | 0  | 1  | 0  |
| Configuration              |           | LT |   |   |           |   |   | TR |            |   |   |   |            |    | LR |    |
| Volume (veh/h)             |           | 0  | 7 |   |           |   | 9 | 3  |            |   |   |   |            | 2  |    | 2  |
| Percent Heavy Vehicles (%) |           | 2  |   |   |           |   |   |    |            |   |   |   |            | 2  |    | 2  |
| Proportion Time Blocked    |           |    |   |   |           |   |   |    |            |   |   |   |            |    |    |    |
| Percent Grade (%)          |           |    |   |   |           |   |   |    |            |   |   |   |            | 0  |    |    |
| Right Turn Channelized     |           |    |   |   |           |   |   |    |            |   |   |   |            |    |    |    |
| Median Type   Storage      |           |    |   |   |           |   |   |    |            |   |   |   |            |    |    |    |

## Critical and Follow-up Headways

|                              |  |      |  |  |  |  |  |  |  |  |  |  |  |      |  |      |
|------------------------------|--|------|--|--|--|--|--|--|--|--|--|--|--|------|--|------|
| Base Critical Headway (sec)  |  | 4.1  |  |  |  |  |  |  |  |  |  |  |  | 7.1  |  | 6.2  |
| Critical Headway (sec)       |  | 4.12 |  |  |  |  |  |  |  |  |  |  |  | 6.42 |  | 6.22 |
| Base Follow-Up Headway (sec) |  | 2.2  |  |  |  |  |  |  |  |  |  |  |  | 3.5  |  | 3.3  |
| Follow-Up Headway (sec)      |  | 2.22 |  |  |  |  |  |  |  |  |  |  |  | 3.52 |  | 3.32 |

## Delay, Queue Length, and Level of Service

|                                         |  |      |     |  |  |  |  |  |  |  |  |  |  |     |      |  |
|-----------------------------------------|--|------|-----|--|--|--|--|--|--|--|--|--|--|-----|------|--|
| Flow Rate, v (veh/h)                    |  | 0    |     |  |  |  |  |  |  |  |  |  |  |     | 6    |  |
| Capacity, c (veh/h)                     |  | 1601 |     |  |  |  |  |  |  |  |  |  |  |     | 1027 |  |
| v/c Ratio                               |  | 0.00 |     |  |  |  |  |  |  |  |  |  |  |     | 0.01 |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  | 0.0  |     |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |      |     |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |
| Control Delay (s/veh)                   |  | 7.2  | 0.0 |  |  |  |  |  |  |  |  |  |  |     | 8.5  |  |
| Level of Service (LOS)                  |  | A    | A   |  |  |  |  |  |  |  |  |  |  |     | A    |  |
| Approach Delay (s/veh)                  |  | 0.0  |     |  |  |  |  |  |  |  |  |  |  | 8.5 |      |  |
| Approach LOS                            |  | A    |     |  |  |  |  |  |  |  |  |  |  | A   |      |  |

# HCS Two-Way Stop-Control Report

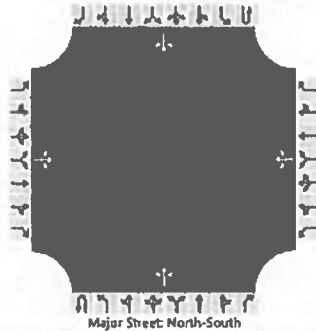
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Existing AM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                               |
|----------------------------|-------------------------------|
| Intersection               | Yarnell Road at Graybeal Road |
| Jurisdiction               | Knox County                   |
| East/West Street           | Graybeal Road                 |
| North/South Street         | Yarnell Road                  |
| Peak Hour Factor           | 0.87                          |
| Analysis Time Period (hrs) | 0.25                          |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |     |    | Westbound |   |     |   | Northbound |   |     |   | Southbound |   |     |   |
|----------------------------|-----------|----|-----|----|-----------|---|-----|---|------------|---|-----|---|------------|---|-----|---|
| Movement                   | U         | L  | T   | R  | U         | L | T   | R | U          | L | T   | R | U          | L | T   | R |
| Priority                   |           | 10 | 11  | 12 |           | 7 | 8   | 9 | 1U         | 1 | 2   | 3 | 4U         | 4 | 5   | 6 |
| Number of Lanes            |           | 0  | 1   | 0  |           | 0 | 1   | 0 | 0          | 0 | 1   | 0 | 0          | 0 | 1   | 0 |
| Configuration              |           |    | LTR |    |           |   | LTR |   |            |   | LTR |   |            |   | LTR |   |
| Volume (veh/h)             |           | 2  | 0   | 12 |           | 1 | 0   | 0 |            | 8 | 288 | 1 |            | 0 | 118 | 0 |
| Percent Heavy Vehicles (%) |           | 2  | 2   | 2  |           | 2 | 2   | 2 |            | 2 |     |   |            | 2 |     |   |
| Proportion Time Blocked    |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Percent Grade (%)          | 0         |    |     |    | 0         |   |     |   |            |   |     |   |            |   |     |   |
| Right Turn Channelized     |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Median Type   Storage      | Undivided |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |

## Critical and Follow-up Headways

|                              |  |      |      |      |  |      |      |      |  |      |  |  |  |      |  |  |
|------------------------------|--|------|------|------|--|------|------|------|--|------|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  | 7.1  | 6.5  | 6.2  |  | 7.1  | 6.5  | 6.2  |  | 4.1  |  |  |  | 4.1  |  |  |
| Critical Headway (sec)       |  | 7.12 | 6.52 | 6.22 |  | 7.12 | 6.52 | 6.22 |  | 4.12 |  |  |  | 4.12 |  |  |
| Base Follow-Up Headway (sec) |  | 3.5  | 4.0  | 3.3  |  | 3.5  | 4.0  | 3.3  |  | 2.2  |  |  |  | 2.2  |  |  |
| Follow-Up Headway (sec)      |  | 3.52 | 4.02 | 3.32 |  | 3.52 | 4.02 | 3.32 |  | 2.22 |  |  |  | 2.22 |  |  |

## Delay, Queue Length, and Level of Service

|                                         |     |  |      |  |      |  |      |  |     |  |      |     |     |  |      |     |
|-----------------------------------------|-----|--|------|--|------|--|------|--|-----|--|------|-----|-----|--|------|-----|
| Flow Rate, v (veh/h)                    |     |  | 16   |  |      |  | 1    |  |     |  | 9    |     |     |  | 0    |     |
| Capacity, c (veh/h)                     |     |  | 812  |  |      |  | 476  |  |     |  | 1449 |     |     |  | 1227 |     |
| v/c Ratio                               |     |  | 0.02 |  |      |  | 0.00 |  |     |  | 0.01 |     |     |  | 0.00 |     |
| 95% Queue Length, Q <sub>95</sub> (veh) |     |  | 0.1  |  |      |  | 0.0  |  |     |  | 0.0  |     |     |  | 0.0  |     |
| 95% Queue Length, Q <sub>95</sub> (ft)  |     |  | 2.5  |  |      |  | 0.0  |  |     |  |      |     |     |  |      |     |
| Control Delay (s/veh)                   |     |  | 9.5  |  |      |  | 12.6 |  |     |  | 7.5  | 0.1 | 0.1 |  | 7.9  | 0.0 |
| Level of Service (LOS)                  |     |  | A    |  |      |  | B    |  |     |  | A    | A   | A   |  | A    | A   |
| Approach Delay (s/veh)                  | 9.5 |  |      |  | 12.6 |  |      |  | 0.3 |  |      |     | 0.0 |  |      |     |
| Approach LOS                            | A   |  |      |  | B    |  |      |  | A   |  |      |     | A   |  |      |     |

# HCS Two-Way Stop-Control Report

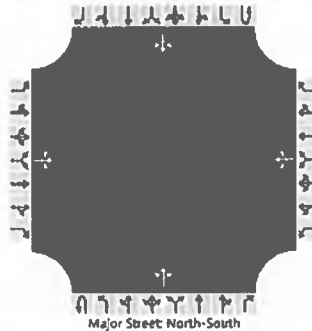
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Existing PM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                               |
|----------------------------|-------------------------------|
| Intersection               | Yarnell Road at Graybeal Road |
| Jurisdiction               | Knox County                   |
| East/West Street           | Graybeal Road                 |
| North/South Street         | Yarnell Road                  |
| Peak Hour Factor           | 0.93                          |
| Analysis Time Period (hrs) | 0.25                          |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |     |    | Westbound |   |     |   | Northbound |   |     |   | Southbound |   |     |   |
|----------------------------|-----------|----|-----|----|-----------|---|-----|---|------------|---|-----|---|------------|---|-----|---|
| Movement                   | U         | L  | T   | R  | U         | L | T   | R | U          | L | T   | R | U          | L | T   | R |
| Priority                   |           | 10 | 11  | 12 |           | 7 | 8   | 9 | 10         | 1 | 2   | 3 | 40         | 4 | 5   | 6 |
| Number of Lanes            |           | 0  | 1   | 0  |           | 0 | 1   | 0 | 0          | 0 | 1   | 0 | 0          | 0 | 1   | 0 |
| Configuration              |           |    | LTR |    |           |   | LTR |   |            |   | LTR |   |            |   | LTR |   |
| Volume (veh/h)             |           | 1  | 0   | 4  |           | 0 | 0   | 0 |            | 7 | 232 | 1 |            | 0 | 168 | 2 |
| Percent Heavy Vehicles (%) |           | 2  | 2   | 2  |           | 2 | 2   | 2 |            | 2 |     |   |            | 2 |     |   |
| Proportion Time Blocked    |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Percent Grade (%)          | 0         |    |     |    | 0         |   |     |   |            |   |     |   |            |   |     |   |
| Right Turn Channelized     |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Median Type   Storage      | Undivided |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |

## Critical and Follow-up Headways

|                              |  |      |      |      |  |      |      |      |  |      |  |  |  |      |  |  |
|------------------------------|--|------|------|------|--|------|------|------|--|------|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  | 7.1  | 6.5  | 6.2  |  | 7.1  | 6.5  | 6.2  |  | 4.1  |  |  |  | 4.1  |  |  |
| Critical Headway (sec)       |  | 7.12 | 6.52 | 6.22 |  | 7.12 | 6.52 | 6.22 |  | 4.12 |  |  |  | 4.12 |  |  |
| Base Follow-Up Headway (sec) |  | 3.5  | 4.0  | 3.3  |  | 3.5  | 4.0  | 3.3  |  | 2.2  |  |  |  | 2.2  |  |  |
| Follow-Up Headway (sec)      |  | 3.52 | 4.02 | 3.32 |  | 3.52 | 4.02 | 3.32 |  | 2.22 |  |  |  | 2.22 |  |  |

## Delay, Queue Length, and Level of Service

|                                         |     |  |      |  |  |  |   |  |     |      |     |     |     |      |     |     |
|-----------------------------------------|-----|--|------|--|--|--|---|--|-----|------|-----|-----|-----|------|-----|-----|
| Flow Rate, v (veh/h)                    |     |  | 5    |  |  |  | 0 |  |     | 8    |     |     |     | 0    |     |     |
| Capacity, c (veh/h)                     |     |  | 761  |  |  |  | 0 |  |     | 1392 |     |     |     | 1315 |     |     |
| v/c Ratio                               |     |  | 0.01 |  |  |  |   |  |     | 0.01 |     |     |     | 0.00 |     |     |
| 95% Queue Length, Q <sub>95</sub> (veh) |     |  | 0.0  |  |  |  |   |  |     | 0.0  |     |     |     | 0.0  |     |     |
| 95% Queue Length, Q <sub>95</sub> (ft)  |     |  | 0.0  |  |  |  |   |  |     |      |     |     |     |      |     |     |
| Control Delay (s/veh)                   |     |  | 9.8  |  |  |  |   |  |     | 7.6  | 0.0 | 0.0 |     | 7.7  | 0.0 | 0.0 |
| Level of Service (LOS)                  |     |  | A    |  |  |  |   |  |     | A    | A   | A   |     | A    | A   | A   |
| Approach Delay (s/veh)                  | 9.8 |  |      |  |  |  |   |  | 0.3 |      |     |     | 0.0 |      |     |     |
| Approach LOS                            | A   |  |      |  |  |  |   |  | A   |      |     |     | A   |      |     |     |

# HCS Two-Way Stop-Control Report

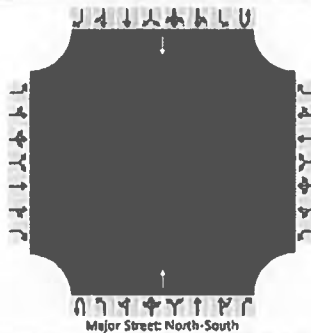
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Combined AM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                  |
|----------------------------|----------------------------------|
| Intersection               | Buttermilk Road at Graybeal Road |
| Jurisdiction               | Knox County                      |
| East/West Street           | Graybeal Road                    |
| North/South Street         | Buttermilk Road                  |
| Peak Hour Factor           | 0.85                             |
| Analysis Time Period (hrs) | 0.25                             |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |    |    | Westbound |   |   |   | Northbound |   |    |   | Southbound |   |    |   |
|----------------------------|-----------|----|----|----|-----------|---|---|---|------------|---|----|---|------------|---|----|---|
| Movement                   | U         | L  | T  | R  | U         | L | T | R | U          | L | T  | R | U          | L | T  | R |
| Priority                   |           | 10 | 11 | 12 |           | 7 | 8 | 9 | 1U         | 1 | 2  | 3 | 4U         | 4 | 5  | 6 |
| Number of Lanes            |           | 0  | 0  | 0  |           | 0 | 0 | 0 | 0          | 0 | 1  | 0 | 0          | 0 | 1  | 0 |
| Configuration              |           |    |    |    |           |   |   |   |            |   | T  |   |            |   | T  |   |
| Volume (veh/h)             |           |    |    |    |           |   |   |   |            |   | 50 |   |            |   | 40 |   |
| Percent Heavy Vehicles (%) |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Proportion Time Blocked    |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Percent Grade (%)          |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Right Turn Channelized     |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Median Type   Storage      | Undivided |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |

## Critical and Follow-up Headways

|                              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Base Critical Headway (sec)  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Critical Headway (sec)       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Base Follow-Up Headway (sec) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Follow-Up Headway (sec)      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Delay, Queue Length, and Level of Service

|                                         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Flow Rate, v (veh/h)                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Capacity, c (veh/h)                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| v/c Ratio                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Delay (s/veh)                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Level of Service (LOS)                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Approach Delay (s/veh)                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Approach LOS                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# HCS Two-Way Stop-Control Report

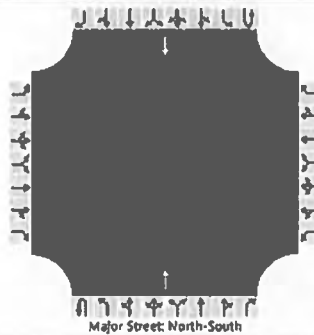
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Combined PM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                  |
|----------------------------|----------------------------------|
| Intersection               | Buttermilk Road at Graybeal Road |
| Jurisdiction               | Knox County                      |
| East/West Street           | Graybeal Road                    |
| North/South Street         | Buttermilk Road                  |
| Peak Hour Factor           | 0.85                             |
| Analysis Time Period (hrs) | 0.25                             |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |    |    | Westbound |   |   |   | Northbound |   |    |   | Southbound |   |    |   |
|----------------------------|-----------|----|----|----|-----------|---|---|---|------------|---|----|---|------------|---|----|---|
| Movement                   | U         | L  | T  | R  | U         | L | T | R | U          | L | T  | R | U          | L | T  | R |
| Priority                   |           | 10 | 11 | 12 |           | 7 | 8 | 9 | 1U         | 1 | 2  | 3 | 4U         | 4 | 5  | 6 |
| Number of Lanes            |           | 0  | 0  | 0  |           | 0 | 0 | 0 | 0          | 0 | 1  | 0 | 0          | 0 | 1  | 0 |
| Configuration              |           |    |    |    |           |   |   |   |            |   | T  |   |            |   | T  |   |
| Volume (veh/h)             |           |    |    |    |           |   |   |   |            |   | 44 |   |            |   | 72 |   |
| Percent Heavy Vehicles (%) |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Proportion Time Blocked    |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Percent Grade (%)          |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Right Turn Channelized     |           |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |
| Median Type   Storage      | Undivided |    |    |    |           |   |   |   |            |   |    |   |            |   |    |   |

## Critical and Follow-up Headways

|                              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Base Critical Headway (sec)  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Critical Headway (sec)       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Base Follow-Up Headway (sec) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Follow-Up Headway (sec)      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Delay, Queue Length, and Level of Service

|                                         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Flow Rate, v (veh/h)                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Capacity, c (veh/h)                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| v/c Ratio                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Delay (s/veh)                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Level of Service (LOS)                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Approach Delay (s/veh)                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Approach LOS                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# HCS Two-Way Stop-Control Report

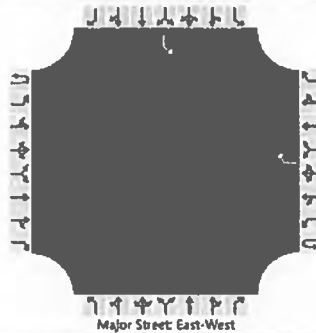
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Combined AM Peak          |
| Intersection Orientation | East-West                 |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                |
|----------------------------|--------------------------------|
| Intersection               | Pittman Drive at Graybeal Road |
| Jurisdiction               | Knox County                    |
| East/West Street           | Graybeal Road                  |
| North/South Street         | Pittman Drive                  |
| Peak Hour Factor           | 0.82                           |
| Analysis Time Period (hrs) | 0.25                           |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |   |   |   | Westbound |   |   |   | Northbound |   |   |   | Southbound |    |    |    |
|----------------------------|-----------|---|---|---|-----------|---|---|---|------------|---|---|---|------------|----|----|----|
| Movement                   | U         | L | T | R | U         | L | T | R | U          | L | T | R | U          | L  | T  | R  |
| Priority                   | 1U        | 1 | 2 | 3 | 4U        | 4 | 5 | 6 |            | 7 | 8 | 9 |            | 10 | 11 | 12 |
| Number of Lanes            | 0         | 0 | 0 | 0 | 0         | 0 | 0 | 1 |            | 0 | 0 | 0 |            | 1  | 0  | 0  |
| Configuration              |           |   |   |   |           |   |   | R |            |   |   |   |            | L  |    |    |
| Volume (veh/h)             |           |   |   |   |           |   |   | 8 |            |   |   |   |            | 5  |    |    |
| Percent Heavy Vehicles (%) |           |   |   |   |           |   |   |   |            |   |   |   |            | 2  |    |    |
| Proportion Time Blocked    |           |   |   |   |           |   |   |   |            |   |   |   |            |    |    |    |
| Percent Grade (%)          |           |   |   |   |           |   |   |   |            |   |   |   | 0          |    |    |    |
| Right Turn Channelized     |           |   |   |   | No        |   |   |   |            |   |   |   |            |    |    |    |
| Median Type   Storage      | Undivided |   |   |   |           |   |   |   |            |   |   |   |            |    |    |    |

## Critical and Follow-up Headways

|                              |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |
|------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6.4  |  |  |
| Critical Headway (sec)       |  |  |  |  |  |  |  |  |  |  |  |  |  | 5.74 |  |  |
| Base Follow-Up Headway (sec) |  |  |  |  |  |  |  |  |  |  |  |  |  | 3.8  |  |  |
| Follow-Up Headway (sec)      |  |  |  |  |  |  |  |  |  |  |  |  |  | 3.82 |  |  |

## Delay, Queue Length, and Level of Service

|                                         |  |  |  |  |  |  |  |  |  |  |  |  |     |      |  |  |
|-----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|-----|------|--|--|
| Flow Rate, v (veh/h)                    |  |  |  |  |  |  |  |  |  |  |  |  |     | 6    |  |  |
| Capacity, c (veh/h)                     |  |  |  |  |  |  |  |  |  |  |  |  |     | 942  |  |  |
| v/c Ratio                               |  |  |  |  |  |  |  |  |  |  |  |  |     | 0.01 |  |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |  |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |  |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |  |
| Control Delay (s/veh)                   |  |  |  |  |  |  |  |  |  |  |  |  |     | 8.8  |  |  |
| Level of Service (LOS)                  |  |  |  |  |  |  |  |  |  |  |  |  |     | A    |  |  |
| Approach Delay (s/veh)                  |  |  |  |  |  |  |  |  |  |  |  |  | 8.8 |      |  |  |
| Approach LOS                            |  |  |  |  |  |  |  |  |  |  |  |  | A   |      |  |  |

# HCS Two-Way Stop-Control Report

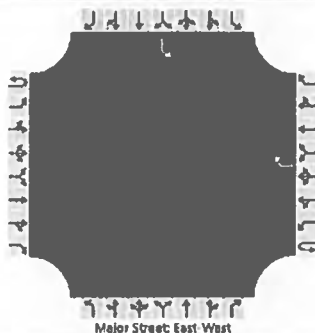
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Combined PM Peak          |
| Intersection Orientation | East-West                 |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                                |
|----------------------------|--------------------------------|
| Intersection               | Pittman Drive at Graybeal Road |
| Jurisdiction               | Knox County                    |
| East/West Street           | Graybeal Road                  |
| North/South Street         | Pittman Drive                  |
| Peak Hour Factor           | 0.72                           |
| Analysis Time Period (hrs) | 0.25                           |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |   |   |   | Westbound |   |   |    | Northbound |   |   |   | Southbound |    |    |    |
|----------------------------|-----------|---|---|---|-----------|---|---|----|------------|---|---|---|------------|----|----|----|
| Movement                   | U         | L | T | R | U         | L | T | R  | U          | L | T | R | U          | L  | T  | R  |
| Priority                   | 1U        | 1 | 2 | 3 | 4U        | 4 | 5 | 6  |            | 7 | 8 | 9 |            | 10 | 11 | 12 |
| Number of Lanes            | 0         | 0 | 0 | 0 | 0         | 0 | 0 | 1  |            | 0 | 0 | 0 |            | 1  | 0  | 0  |
| Configuration              |           |   |   |   |           |   |   | R  |            |   |   |   |            | L  |    |    |
| Volume (veh/h)             |           |   |   |   |           |   |   | 12 |            |   |   |   |            | 4  |    |    |
| Percent Heavy Vehicles (%) |           |   |   |   |           |   |   |    |            |   |   |   |            | 2  |    |    |
| Proportion Time Blocked    |           |   |   |   |           |   |   |    |            |   |   |   |            |    |    |    |
| Percent Grade (%)          |           |   |   |   |           |   |   |    |            |   |   |   | 0          |    |    |    |
| Right Turn Channelized     |           |   |   |   | No        |   |   |    |            |   |   |   |            |    |    |    |
| Median Type   Storage      | Undivided |   |   |   |           |   |   |    |            |   |   |   |            |    |    |    |

## Critical and Follow-up Headways

|                              |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |
|------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6.4  |  |  |
| Critical Headway (sec)       |  |  |  |  |  |  |  |  |  |  |  |  |  | 5.74 |  |  |
| Base Follow-Up Headway (sec) |  |  |  |  |  |  |  |  |  |  |  |  |  | 3.8  |  |  |
| Follow-Up Headway (sec)      |  |  |  |  |  |  |  |  |  |  |  |  |  | 3.82 |  |  |

## Delay, Queue Length, and Level of Service

|                                         |  |  |  |  |  |  |  |  |  |  |  |  |     |      |  |  |
|-----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|-----|------|--|--|
| Flow Rate, v (veh/h)                    |  |  |  |  |  |  |  |  |  |  |  |  |     | 6    |  |  |
| Capacity, c (veh/h)                     |  |  |  |  |  |  |  |  |  |  |  |  |     | 942  |  |  |
| v/c Ratio                               |  |  |  |  |  |  |  |  |  |  |  |  |     | 0.01 |  |  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |  |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |  |
| 95% Queue Length, Q <sub>95</sub> (ft)  |  |  |  |  |  |  |  |  |  |  |  |  |     | 0.0  |  |  |
| Control Delay (s/veh)                   |  |  |  |  |  |  |  |  |  |  |  |  |     | 8.8  |  |  |
| Level of Service (LOS)                  |  |  |  |  |  |  |  |  |  |  |  |  |     | A    |  |  |
| Approach Delay (s/veh)                  |  |  |  |  |  |  |  |  |  |  |  |  | 8.8 |      |  |  |
| Approach LOS                            |  |  |  |  |  |  |  |  |  |  |  |  | A   |      |  |  |

# HCS Two-Way Stop-Control Report

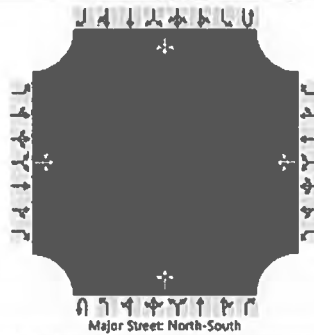
## General Information

|                          |                           |
|--------------------------|---------------------------|
| Analyst                  | Addie Kirkham             |
| Agency/Co.               | Ardurra                   |
| Date Performed           | 1/15/2026                 |
| Analysis Year            | 2026                      |
| Time Analyzed            | Combined AM Peak          |
| Intersection Orientation | North-South               |
| Project Description      | Graybeal Road Closure TIL |

## Site Information

|                            |                               |
|----------------------------|-------------------------------|
| Intersection               | Yarnell Road at Graybeal Road |
| Jurisdiction               | Knox County                   |
| East/West Street           | Graybeal Road                 |
| North/South Street         | Yarnell Road                  |
| Peak Hour Factor           | 0.87                          |
| Analysis Time Period (hrs) | 0.25                          |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |     |    | Westbound |   |     |   | Northbound |   |     |   | Southbound |   |     |   |
|----------------------------|-----------|----|-----|----|-----------|---|-----|---|------------|---|-----|---|------------|---|-----|---|
| Movement                   | U         | L  | T   | R  | U         | L | T   | R | U          | L | T   | R | U          | L | T   | R |
| Priority                   |           | 10 | 11  | 12 |           | 7 | 8   | 9 | 1U         | 1 | 2   | 3 | 4U         | 4 | 5   | 6 |
| Number of Lanes            |           | 0  | 1   | 0  |           | 0 | 1   | 0 | 0          | 0 | 1   | 0 | 0          | 0 | 1   | 0 |
| Configuration              |           |    | LTR |    |           |   | LTR |   |            |   | LTR |   |            |   | LTR |   |
| Volume (veh/h)             |           | 2  | 0   | 12 |           | 1 | 0   | 0 |            | 8 | 288 | 1 |            | 0 | 118 | 0 |
| Percent Heavy Vehicles (%) |           | 2  | 2   | 2  |           | 2 | 2   | 2 |            | 2 |     |   |            | 2 |     |   |
| Proportion Time Blocked    |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Percent Grade (%)          | 0         |    |     |    | 0         |   |     |   |            |   |     |   |            |   |     |   |
| Right Turn Channelized     |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Median Type   Storage      | Undivided |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |

## Critical and Follow-up Headways

|                              |  |      |      |      |  |      |      |      |  |      |  |  |  |      |  |  |
|------------------------------|--|------|------|------|--|------|------|------|--|------|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  | 7.1  | 6.5  | 6.2  |  | 7.1  | 6.5  | 6.2  |  | 4.1  |  |  |  | 4.1  |  |  |
| Critical Headway (sec)       |  | 7.12 | 6.52 | 6.22 |  | 7.12 | 6.52 | 6.22 |  | 4.12 |  |  |  | 4.12 |  |  |
| Base Follow-Up Headway (sec) |  | 3.5  | 4.0  | 3.3  |  | 3.5  | 4.0  | 3.3  |  | 2.2  |  |  |  | 2.2  |  |  |
| Follow-Up Headway (sec)      |  | 3.52 | 4.02 | 3.32 |  | 3.52 | 4.02 | 3.32 |  | 2.22 |  |  |  | 2.22 |  |  |

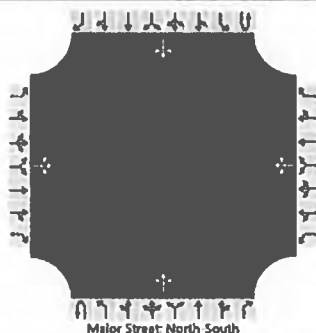
## Delay, Queue Length, and Level of Service

|                                         |     |  |      |  |      |  |      |  |     |      |     |     |     |      |     |     |
|-----------------------------------------|-----|--|------|--|------|--|------|--|-----|------|-----|-----|-----|------|-----|-----|
| Flow Rate, v (veh/h)                    |     |  | 16   |  |      |  | 1    |  |     | 9    |     |     |     | 0    |     |     |
| Capacity, c (veh/h)                     |     |  | 812  |  |      |  | 476  |  |     | 1449 |     |     |     | 1227 |     |     |
| v/c Ratio                               |     |  | 0.02 |  |      |  | 0.00 |  |     | 0.01 |     |     |     | 0.00 |     |     |
| 95% Queue Length, Q <sub>95</sub> (veh) |     |  | 0.1  |  |      |  | 0.0  |  |     | 0.0  |     |     |     | 0.0  |     |     |
| 95% Queue Length, Q <sub>95</sub> (ft)  |     |  | 2.5  |  |      |  | 0.0  |  |     |      |     |     |     |      |     |     |
| Control Delay (s/veh)                   |     |  | 9.5  |  |      |  | 12.6 |  |     | 7.5  | 0.1 | 0.1 |     | 7.9  | 0.0 | 0.0 |
| Level of Service (LOS)                  |     |  | A    |  |      |  | B    |  |     | A    | A   | A   |     | A    | A   | A   |
| Approach Delay (s/veh)                  | 9.5 |  |      |  | 12.6 |  |      |  | 0.3 |      |     |     | 0.0 |      |     |     |
| Approach LOS                            | A   |  |      |  | B    |  |      |  | A   |      |     |     | A   |      |     |     |

# HCS Two-Way Stop-Control Report

| General Information      |                           | Site Information           |                               |
|--------------------------|---------------------------|----------------------------|-------------------------------|
| Analyst                  | Addie Kirkham             | Intersection               | Yarnell Road at Graybeal Road |
| Agency/Co.               | Ardurra                   | Jurisdiction               | Knox County                   |
| Date Performed           | 1/15/2026                 | East/West Street           | Graybeal Road                 |
| Analysis Year            | 2026                      | North/South Street         | Yarnell Road                  |
| Time Analyzed            | Combined PM Peak          | Peak Hour Factor           | 0.93                          |
| Intersection Orientation | North-South               | Analysis Time Period (hrs) | 0.25                          |
| Project Description      | Graybeal Road Closure TIL |                            |                               |

## Lanes



## Vehicle Volumes and Adjustments

| Approach                   | Eastbound |    |     |    | Westbound |   |     |   | Northbound |   |     |   | Southbound |   |     |   |
|----------------------------|-----------|----|-----|----|-----------|---|-----|---|------------|---|-----|---|------------|---|-----|---|
| Movement                   | U         | L  | T   | R  | U         | L | T   | R | U          | L | T   | R | U          | L | T   | R |
| Priority                   |           | 10 | 11  | 12 |           | 7 | 8   | 9 | 1U         | 1 | 2   | 3 | 4U         | 4 | 5   | 6 |
| Number of Lanes            |           | 0  | 1   | 0  |           | 0 | 1   | 0 | 0          | 0 | 1   | 0 | 0          | 0 | 1   | 0 |
| Configuration              |           |    | LTR |    |           |   | LTR |   |            |   | LTR |   |            |   | LTR |   |
| Volume (veh/h)             |           | 1  | 0   | 4  |           | 0 | 0   | 0 |            | 7 | 232 | 1 |            | 0 | 168 | 2 |
| Percent Heavy Vehicles (%) |           | 2  | 2   | 2  |           | 2 | 2   | 2 |            | 2 |     |   |            | 2 |     |   |
| Proportion Time Blocked    |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Percent Grade (%)          | 0         |    |     |    | 0         |   |     |   |            |   |     |   |            |   |     |   |
| Right Turn Channelized     |           |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |
| Median Type   Storage      | Undivided |    |     |    |           |   |     |   |            |   |     |   |            |   |     |   |

## Critical and Follow-up Headways

|                              |  |      |      |      |  |      |      |      |  |      |  |  |  |      |  |  |
|------------------------------|--|------|------|------|--|------|------|------|--|------|--|--|--|------|--|--|
| Base Critical Headway (sec)  |  | 7.1  | 6.5  | 6.2  |  | 7.1  | 6.5  | 6.2  |  | 4.1  |  |  |  | 4.1  |  |  |
| Critical Headway (sec)       |  | 7.12 | 6.52 | 6.22 |  | 7.12 | 6.52 | 6.22 |  | 4.12 |  |  |  | 4.12 |  |  |
| Base Follow-Up Headway (sec) |  | 3.5  | 4.0  | 3.3  |  | 3.5  | 4.0  | 3.3  |  | 2.2  |  |  |  | 2.2  |  |  |
| Follow-Up Headway (sec)      |  | 3.52 | 4.02 | 3.32 |  | 3.52 | 4.02 | 3.32 |  | 2.22 |  |  |  | 2.22 |  |  |

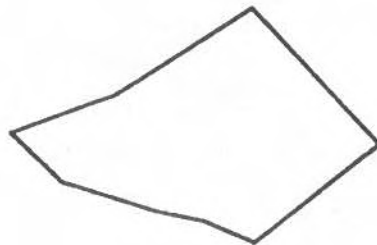
## Delay, Queue Length, and Level of Service

|                                         |     |  |      |  |  |  |   |  |     |      |     |     |     |      |     |     |
|-----------------------------------------|-----|--|------|--|--|--|---|--|-----|------|-----|-----|-----|------|-----|-----|
| Flow Rate, v (veh/h)                    |     |  | 5    |  |  |  | 0 |  |     | 8    |     |     |     | 0    |     |     |
| Capacity, c (veh/h)                     |     |  | 761  |  |  |  | 0 |  |     | 1392 |     |     |     | 1315 |     |     |
| v/c Ratio                               |     |  | 0.01 |  |  |  |   |  |     | 0.01 |     |     |     | 0.00 |     |     |
| 95% Queue Length, Q <sub>95</sub> (veh) |     |  | 0.0  |  |  |  |   |  |     | 0.0  |     |     |     | 0.0  |     |     |
| 95% Queue Length, Q <sub>95</sub> (ft)  |     |  | 0.0  |  |  |  |   |  |     |      |     |     |     |      |     |     |
| Control Delay (s/veh)                   |     |  | 9.8  |  |  |  |   |  |     | 7.6  | 0.0 | 0.0 |     | 7.7  | 0.0 | 0.0 |
| Level of Service (LOS)                  |     |  | A    |  |  |  |   |  |     | A    | A   | A   |     | A    | A   | A   |
| Approach Delay (s/veh)                  | 9.8 |  |      |  |  |  |   |  | 0.3 |      |     |     | 0.0 |      |     |     |
| Approach LOS                            | A   |  |      |  |  |  |   |  | A   |      |     |     | A   |      |     |     |

## **Proposed Permitted Area (Parcel 129 08001)**

### **Metes and Bounds Description**

TRACT III: BEGINNING at an iron pin in the Northern or Northeastern right of way of Graybeal Road, a distance of 497.70 feet, more or less, along said right of way line in a northwesterly direction from its point of intersection with the centerline of Pittman Road; thence with the right of way of said Graybeal Road the following calls: along a curve to the left having a chord of N. 66-54 W. for 262.94 feet to a point; thence N. 78-08 W. for 224.84 feet to a point; thence N. 72-31 W. for 469.91 feet to a point; thence along a curve to the right having a chord of N. 46-22 W. for 337.70 feet to an iron pin, being a corner with Jack Truitt; thence with Jack Truitt N. 69-48 E. for 524.04 feet to an iron pin; thence with Jack Truitt N. 57-17 E. for 773.00 feet to an iron pin, being a common corner with Jack Truitt and Edward Bryant; thence with Bryant and with a fence S. 42-52 E. for 889.44 feet to an iron pin, being a common corner with Bryant and Dunaway; thence with Dunaway and with a fence S. 51-34 W. for 756.60 feet to the point of beginning and containing 23.11 acres by the survey dated February 15, 1989 of Sizemore-Lynch and Associates.

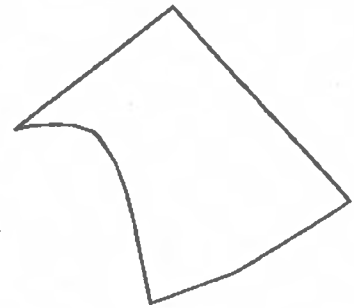


**EXHIBIT**

**7.0**

**Proposed Permitted Area (Parcel 129 080)**  
**Metes and Bounds Description**

TRACT II: BEGINNING at an iron pin located in the Northern or Northeastern right of way of Graybeal Road, a distance of 1,793.09 feet, more or less, along said right of way line in a northwesterly direction from its point of intersection with the centerline of Pittman Road, said pin being a corner with Richard Truitt; thence with the right of way of said Graybeal Road the following calls: along a curve to the right having a chord of N. 15-51W. for 58.16 feet to a point; thence N. 11-30 W. for 496.84 feet to a point; thence N. 15-17 W. for 203.07 feet to a point; thence N. 23-36 W. for 172.02 feet to a point; thence N. 40-34 W. for 142.95 feet to a point; thence N. 71-25 W. for 128.24 feet to a point; thence N. 88-19 W. for 178.09 feet to a point; thence S. 79-24 W. for 155.77 feet to an iron pin; thence leaving the right of way of Graybeal Road and continuing N. 51-46 E. for 229.78 feet to an iron pin, being a corner with Sims; thence with Sims N. 51-50 E. for 263.50 feet to an iron pin, being a common corner with Sims and Bowerman; thence with Bowerman N. 52-32 E. for 124.52 feet to an iron pin; thence N. 52-32 E. for 124.51 feet to an iron pin, being a common corner with Bowerman and Perry; thence with Perry N. 52-01 E. for 119.91 feet to an iron pin, being a corner with Perry and Lamans; thence with Lamans N. 52-36 E. for 123.70 feet to an iron pin, being a corner with Lamans and Sims; thence with Sims N. 51-26 E. for 170.74 feet to an iron pin, being a corner with Sims and Bryant; thence with Bryant and with a fence S. 41-45 E. for 1,522.05 feet to an iron pin, being a corner with Bryant and Richard Truitt; thence with Richard Truitt S. 57-17 W. for 773.00 feet to an iron pin; thence S. 69-48 W. for 524.04 feet to the point of beginning and containing 33.56 acres by the survey dated February 15, 1989, by Sizemore-Lynch and Associates.

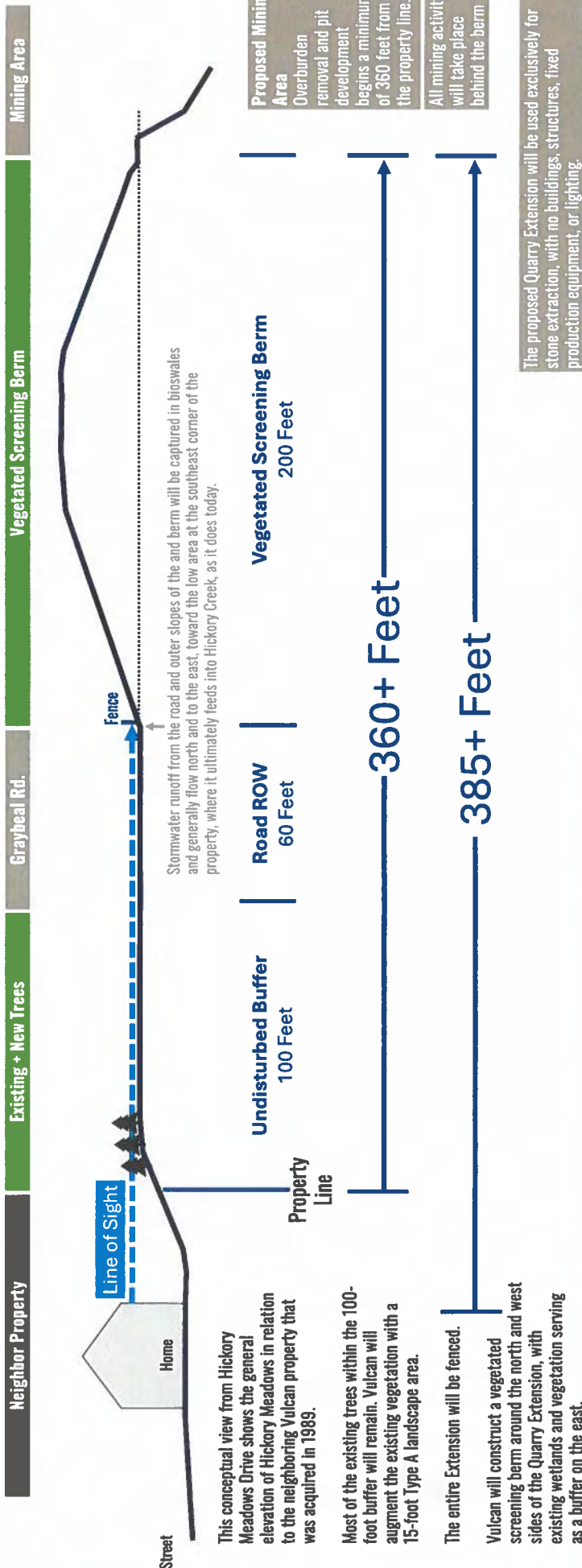


Consistent with the current quarry operations, the extension area will be screened by vegetated berms.



The vegetated screening berm will be approximately 20-25 feet high above grade and follow the existing topography. It will be planted with fast-growing nurse crop mixed with deep rooted perennial grasses, native grasses and wildflowers.

For illustration only



## EXHIBIT R8: SIGHTLINE DRAWING

Perspective from Hickory Meadows Drive

Graybeal A

Material  
Placement and  
Buffer

Overburden  
Removal and Pit  
Development

Existing  
Quarry

MAP SHOWING  
VULCAN CONSTRUCTION MATERIALS, LLC  
DIXIE LEE QUARRY  
PRELIMINARY SITE PLAN MAP  
SITE LOCATION  
INDO COUNTY, MISSISSIPPI

Drawn By: MEC  
Scale: 1" = 100'  
Date: 08/14/2020

- LEGEND
- PROPERTY LINE
  - EXISTING ROAD
  - PUBLIC ROAD
  - STRUCTURES
  - ZONING CHANGE
  - DEVELOPMENT MATERIAL
  - DEVELOPMENT MATERIAL
  - DEVELOPMENT MATERIAL

Map Certification

1. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
2. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
3. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
4. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
5. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
6. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
7. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
8. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
9. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.
10. I, the undersigned, being duly sworn, depose and say that I am the duly qualified and licensed Professional Engineer in the State of Mississippi, and I am the author of the foregoing map, and I certify that the same is a true and correct representation of the facts and conditions as shown to me by the owner of the property, and that I am not aware of any facts or circumstances which would render the same misleading or inaccurate.

**MAP SHOWING**  
**VULCAN CONSTRUCTION MATERIALS, LLC**  
**DIXIE LEE QUARRY**  
**PRELIMINARY SITE PLAN MAP**  
**SITE LOCATION**

Scale: 1" = 100'

Date: 10/15/2024

Legend:

- PROPERTY PERMIT
- PROPOSED OVERBURDEN REMOVAL
- PUBLIC ROAD
- STRUCTURES
- ZONING CHANGE
- DEVELOPED WITH LAND
- OVERBURDEN REMOVAL AND PIT DEVELOPMENT

**Graybeal B**

**Existing Quarry**

**Overburden Removal and Pit Development**

**Map Certification**

I, the undersigned, hereby certify that, to the best of my knowledge and belief, the information furnished herein is true and correct.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Registration No.: \_\_\_\_\_

Professional Seal: \_\_\_\_\_

1. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

2. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

3. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

4. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

5. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

6. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

7. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

8. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

9. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

10. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

**MAP SHOWING**  
**VULCAN CONSTRUCTION MATERIALS, LLC**  
**DIXIE LEE QUARRY**  
**PRELIMINARY SITE PLAN MAP**  
**SITE LOCATION**

Scale: 1" = 100'

Date: 10/15/2024

Legend:

- PROPERTY PERMIT
- PROPOSED OVERBURDEN REMOVAL
- PUBLIC ROAD
- STRUCTURES
- ZONING CHANGE
- DEVELOPED WITH LAND
- OVERBURDEN REMOVAL AND PIT DEVELOPMENT

**Graybeal B**

**Existing Quarry**

**Overburden Removal and Pit Development**

**Map Certification**

I, the undersigned, hereby certify that, to the best of my knowledge and belief, the information furnished herein is true and correct.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Registration No.: \_\_\_\_\_

Professional Seal: \_\_\_\_\_

1. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

2. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

3. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

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9. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

10. Project Area: The project area is located in the county of \_\_\_\_\_, State of \_\_\_\_\_.

**MAP SHOWING**  
**VULCAN CONSTRUCTION MATERIALS, LLC**  
**DIXIE LEE QUARRY**  
**PRELIMINARY SITE PLAN MAP**  
**SITE LOCATION**

Scale: 1" = 100'

Date: 10/15/2024

Legend:

- PROPERTY PERMIT
- PROPOSED OVERBURDEN REMOVAL
- PUBLIC ROAD
- STRUCTURES
- ZONING CHANGE
- DEVELOPED WITH LAND
- OVERBURDEN REMOVAL AND PIT DEVELOPMENT

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| Drawn By: MDC | Scale: 1" = 125' | Date: 08/15/2008 |
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[illegible]

**Signature** \_\_\_\_\_  
\_\_\_\_\_

**Date** \_\_\_\_\_

**Signature** \_\_\_\_\_  
\_\_\_\_\_

**Signature's Seal**

The undersigned, hereby certify that, to the best of my knowledge and belief, the information provided herein is true and correct.

- 
- MAP SHOWING**  
**VULCAN CONSTRUCTION MATERIALS, LLC**  
**DIXIE LEE QUARRY**  
**PRELIMINARY SITE PLAN MAP**  
**SITE LOCATION**
- Scale: 1" = 100'
- Date: 10/15/2024
- Legend:
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- Date: \_\_\_\_\_
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# Public Notice and Community Engagement

Planning strives to provide community members with information about upcoming cases in a variety of ways. In addition to posting public notice signs, our agency encourages applicants to provide information and offer opportunities for dialogue related to their upcoming case(s). The contact information you provide in your application may be used for that purpose. We require applicants to acknowledge their role in this process.

## Sign Posting and Removal

The Administrative Rules and Procedures of the Knoxville-Knox County Planning Commission require a sign to be posted on the property for each application subject to consideration by the Planning Commission.

**Planning staff will post the required sign.** If a replacement sign(s) is needed, the applicant is responsible for picking up the new sign(s) from Planning and will be charged \$10 for each replacement.

### Location and Visibility

The sign must be posted on the nearest adjacent/frontage street and in a location clearly visible to vehicles traveling in either direction. If the property has more than one street frontage, the sign should be placed along the street that carries more traffic. Planning staff may recommend a preferred location for the sign to be posted at the time of application.

### Timing

The sign(s) must be posted not less than 12 days prior to the scheduled Planning Commission public hearing and must remain in place until the day after the meeting. In the case of a postponement, the sign can either remain in place or be removed and reposted not less than 12 days prior to the next Planning Commission meeting. The applicant is responsible for removing the sign after the application has been acted upon by the Planning Commission.

### Acknowledgement

*By signing below, you acknowledge that public notice signs must be posted and visible on the property consistent with the guidelines above and between the dates listed below.*

6/27/26

Date to be Posted

7/10/26

Date to be Removed

**Have you engaged the surrounding property owners to discuss your request?**

☐ Yes ☐ No

☒ No, but I plan to prior to the Planning Commission meeting

Applicant Signature

Thomas M. Hale

Applicant Name

July 26, 2026

Date

**Attachment 2:**  
**Summary of Additional Conditions to those Outlined**  
**in the July 2, 2026 Staff Report**  
(7-27-2026)

Based on feedback Vulcan has received via CARE, and from its continued on-going conversations with individual neighbors, Vulcan has agreed to the following additional conditions.

1. **Additional berm along a realigned Graybeal Road:** Vulcan will construct a landscaped berm (approximately 10 feet high) within the 100-foot undisturbed buffer adjacent to the right-of-way of the new Graybeal Road.
2. **Quarry Extension and drilling and blast setback 125% beyond the County requirement:** Vulcan will maintain a 450-foot drilling and blasting setback from the back of lots fronting on Buttermilk Road, Hickory Meadows Drive and Pittman Drive.
3. **Expanded Vibration Monitoring Network (+5 monitors dedicated to the Extension neighbors):** In addition to its existing network of seven (7) active vibration monitors, Vulcan will maintain five (5) additional monitors dedicated to the Extension Area. These monitors will be scientifically placed to provide enhanced monitoring coverage and additional blasting data for neighbors along Buttermilk Road, Hickory Meadows Drive and Pittman Drive. All monitors will continue to be maintained, and data collected by an independent third-party technical consultant.
4. **Transparent Blasting Data:** Vulcan will make quarterly blasting data available for review by appointment in the Quarry Office.
5. **Neighbor Pre-Blast Notifications:** Vulcan will maintain and promote a pre-blast notification call list for neighbors opting in to receive same-day advance notification of planned blast.
6. **Pre-Blast Structural Surveys:** Vulcan will conduct standard pre-blast surveys of structures within 1,000 feet of the Extension Area offered after the completion of the vegetated screening berm (and relocated Graybeal Road) before the first blast on the Extension Area for property owners who opt-in to the program. Vulcan will notify eligible property owners via mail to explain the procedure and provide a means of scheduling an inspection visit.
7. **Blasting operations:** Blasting operations will generally occur up to 2 times per month, as opposed to 1-2 times per week, between 9 a.m. to 4 p.m., although this frequency is subject to adjustment based on site development needs, proximity to nearby structures, and seasonal market demand. No blasting will occur on Sundays or Federal holidays.
8. **Low-Sound Back-up Alarms:** Vulcan will require the use of low-sound backup alarms on all mobile equipment operating on the Quarry Extension, including during berm construction.

### **ATTACHMENT 3:**

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| Exhibit R 5.0      | Proposed Plan of Operation: Quarry Extension (Clean Redline) |
| Exhibit 5.1        | Safety, Health and Environmental Regulatory Oversight        |
| Exhibit 5.2        | Safe Blasting                                                |
| Exhibit R 8.0      | Quarry Extension Overview                                    |
| Exhibit Graybeal A | with revised buffers                                         |
| Exhibit Graybeal B | with revised buffers                                         |

## **EXHIBIT R 5.0 (7-27-2026 UPDATE)**

### **Proposed Plan of Operation: Quarry Extension**

Underline and strikethrough notates updated text.

#### **Site Background**

The Vulcan Dixie Lee Quarry ("Existing Quarry") is located at 1716 Everett Road in Knox County, TN. It began operating in the 1960's and has been operated by Vulcan since at least 1975. In 1989, Vulcan acquired additional land for future extension of the quarry. A portion of this land was previously permitted. The remaining +/- 57.8 acres is separated from the Existing Quarry by Graybeal Road. Vulcan seeks to vacate a portion of road and to add the remaining acreage (the "Quarry Extension") to the Existing Quarry. This Proposed Plan of Operation for the Quarry Extension does not change Existing Quarry fixed site infrastructure, including production plant equipment, stockpile areas, entrance and exit driveways, scale and wheel wash, office and shop.

#### **Quarry Extension Access**

Access to the extension area will be limited to internal routes within the quarry's existing operations, with no public or customer access. Employee traffic, customer traffic, tenant traffic, contractor traffic and deliveries will continue to use the Existing Quarry entrance located at 1716 Everett Road. The Quarry Extension will not create additional demand, alter the location of existing quarry production plant areas, increase overall site production, or change customer truck traffic volume or patterns.

#### **Safety and Health Information**

Operations at the Existing Quarry are regulated by local, state and federal agencies including the Knox County Department of Air Quality Management, the Tennessee Department of Environment & Conservation (TDEC), the State Fire Marshal, the Mine Safety and Health Administration (MSHA), the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (USACE) see EXHIBIT 5.1.

The MSHA Mine ID number for the site is 40-01427. The Quarry Extension will be added to and covered by this same Federal ID number. Federal inspectors inspect the quarry a minimum of twice per year. MSHA regulations enforce mandatory standards under the Federal Mine Safety and Health Act, including employee exposure to noise and dust, safe operation of fixed and mobile equipment, safe mining practices, employee training programs, and more.

#### **Geology**

Rock formations at the Dixie Lee Quarry and Extension Area include the Maynardville Limestone and Copper Ridge Dolomite. These formations were deposited in flat layers between 490 and 520 Million years ago, while East Tennessee was covered by a warm shallow sea. Tectonic mountain building forces have tilted and folded the flat layers into often steeply dipping

and folded beds of limestone and dolomite that produce high-quality construction aggregate material today.

The steeply dipping and folded layers of the local geology, combined with continued growth and development of the surrounding community, mean that accessible and mineable geologic deposits are found in very limited locations.

The Quarry Extension contains a known mineable geologic deposit adjacent to an existing operating quarry and infrastructure, providing sensible continued access at an established site to a resource that is necessary to construct and maintain roads and other infrastructure in the community. Topsoil, clay and weathered rock and shale lie on top of the high quality dolomite and limestone that are mined and produced for construction aggregate. This material (collectively known as overburden) must be removed to access the high-quality marketable stone beneath.

### **Wetlands**

As with the existing quarry, Vulcan will observe all legally required distances from regulated features. As part of the application due diligence, Vulcan retained a qualified stream and wetland consultant to map and delineate water features on the Extension. The Tennessee Department of Environment and Conservation (TDEC) has reviewed and concurred with the delineation work that will be reviewed by the Army Corps of Engineers (USACE).

### **Overburden Removal**

The overburden material will be removed by excavators or loaders and placed into haul trucks to build the proposed vegetated screening berms. Remaining overburden will be placed in mined out portions of the quarry site. Some pinnacles of very weathered shale and rock beneath the topsoil and clay may require engineered, safe drilling and blasting before removal and placement in the quarry.

### **Buffer and Drill/Blast Setback**

Vulcan will maintain a minimum 450-foot drill and blast setback from the back of residential lots fronting on Buttermilk Road, Hickory Meadows Drive and Pittman Drive which is 125-percent beyond the County requirement of 200 feet.

Adjacent properties not owned or controlled by Vulcan will be screened by a minimum 300-foot buffer, including a 100-foot undisturbed ~~fenced~~ area. Most of the existing trees within the 100-foot buffer will remain and Vulcan will augment the existing vegetation with a 15-foot Type A landscape area. Vulcan will also construct a 20-25 foot high vegetated screening berm (like the existing berm along Buttermilk Road) along the Buttermilk Road and Hickory Meadows Drive sides of the Extension, with existing wetlands and vegetation serving as a buffer on the Pittman Drive side. The entire Extension will be fenced.

If a realignment of Graybeal Road is worked out with Knox County as Vulcan has proposed, an additional 60-foot road right-of-way would be placed between the 100-foot undisturbed area and 200-foot vegetated berm area and make the overall buffer at least 360 feet from adjoining property owners. The new road would be under County ownership and control and built to current County standards, the details of which would be worked out with Knox County Engineering. Once finalized, a condition of Knox Planning's staff recommendation is that a concept plan for the Road would need to come back to the Planning Commission for approval. Vulcan will also construct a second landscaped berm (approximately 10 feet high) within the 100-foot undisturbed area, between the 60-foot right-of-way reserved for a new road and along the neighboring properties of Hickory Meadows Drive. Under this option, the new road would be constructed concurrently with the screening berms.

Prior to extending the mining area onto the Quarry Extension, the vegetated screening berms will be constructed using onsite overburden material to provide visual and sound screening for neighbors. Topsoil will be removed and segregated for spreading on the berm prior to berm vegetation activities. There will be a minimum ~~100~~ 160-foot buffer between the property line and the outer toe of the second berm.

Once berm construction is complete and weather conditions are favorable for planting, the berms will be hydroseeded with an appropriate TDOT permanent reclamation seed mix (specific mix will be dependent on planting date and weather conditions), or something similar including a fast-growing nurse crop mixed with deep rooted perennial grasses, but possibly intermixed with native grasses and wildflowers.

The existing screening berm along Buttermilk Road will be extended along the north and west sides of the Quarry Extension, as shown on the preliminary site plan map [**Exhibit R 4.0**]. Along the south/southeastern side of the Subject Property, a 450-foot wide buffer of trees and heavy vegetation will provide screening

he extended berm will be approximately 20-25 feet above ground level as generally depicted on the illustrative sightline drawing [**Exhibit R 8.0**], following the existing topography with planned slopes of 2 to 1. Stormwater runoff from the outer slopes of the berm (and relocated Graybeal Road) will be captured in a bioswale situated along the toe of the berm and generally flow north and to the east, toward the low area at the southeast corner of the property, where it ultimately feeds into Hickory Creek, as it does today. Water captured on the interior mining area side of the berm will be routed into the Existing Quarry to be used for dust control and production. Water in the quarry is managed through an existing permitted water discharge point see **Exhibit 5.1**.

### **Safe Drilling and Blasting**

Efficient excavation of the limestone and dolomite requires engineered drilling and blasting. At the Dixie Lee Quarry, Vulcan uses a controlled drill-and-blast methodology. All blasting activities are conducted strictly under the supervision of a state-licensed blaster, and adhering to all applicable regulations. The blasts are highly controlled, engineered events that last about a fraction of a second and occur during normal business hours.

Blasting in Tennessee is regulated by the State Fire Marshal's office under the Tennessee Blasting Standards Act, which sets requirements for procedures, limits, monitoring, record keeping and reporting. The limits follow U.S. Bureau of Mines safety standards that are scientifically proven to be safe. Scientific research has extensively shown that if the blasting activities do not produce vibration levels that exceed the limits set by the U.S. Bureau of Mines, the cosmetic damage potential (and thereby structural damage potential) from blasting is zero.

Each blast design is individually engineered to account for the geology, geometry and location. Engineers use laser profiling and digital modeling to predict specific shot behavior that is within ranges far below the permitted safety limits proven to be safe. Vulcan also makes design adjustments whenever reasonably practicable, particularly as extraction activities approach residential areas, to help provide the best possible experience for neighbors.

Drilling is conducted by in-house drillers to meet the specified design of every shot. Various technologies and methodologies are used to ensure drilling is completed to plan. Each hole is logged to document rock conditions including clay and voids that might be encountered during drilling. Blasters review all driller logs before loading each shot. Vulcan uses 3D profiling, borehole tracking and GPS-enabled drilling technologies that are employed as needed at the site, under direction of the Manager of Drilling and Blasting.

Vulcan is required to monitor each blast at a distance no farther than the closest off-site regularly occupied structure not owned or leased by Vulcan. A network of seismographs measures ground vibration and air blast overpressure and reports the data to our engineers and operations team in real-time.

Blasting operations generally occur up to 2 times per ~~week~~ month ~~during normal business hours between 9 a.m. to 4 p.m.,~~ although this frequency is subject to adjustment based on site development needs, proximity to nearby structures, and seasonal market demand. No blasting will occur on Sundays or Federal holidays. ~~Vulcan offers phone notification to neighbors who would like to be contacted in advance of a blast.~~ Vulcan will also maintain and promote a pre-blast notification call list for neighbors opting in to receive same-day advance notification of planned blast.

Each engineered blast is monitored for vibration and air overpressure at least as close as the nearest residential structure. In addition to its existing network of seven active monitors, Vulcan will maintain five additional monitors dedicated to the Extension Area. These monitors will be scientifically placed to provide enhanced monitoring coverage and additional blasting data for neighbors along Buttermilk Road, Hickory Meadows Drive and Pittman Drive. This monitoring is performed by a third-party vibration expert consultant, and the records maintained for review upon request by the State Fire Marshal's office. Vulcan will make quarterly blasting data available for review by appointment in the Quarry Office. Vulcan's blasting results at the Existing Quarry are in full compliance with State limits and have been for many years. The Quarry Extension will be administered in accordance with the same regulations and follow the same proven operational best practices and procedures.

Vulcan will conduct standard pre-blast surveys of structures within 1,000 feet of the Extension Area offered after the completion of the vegetated screening berm (and relocated Graybeal Road) and before the first blast on the Extension Area for property owners who opt-in to the program. Vulcan will notify eligible property owners via mail to explain the procedure and provide a means of scheduling an inspection visit.

### **General Mining Operations**

Mining activities on the Quarry Extension will be limited to berm construction and vegetation, overburden removal, and mine excavation activities that include drilling, safe blasting, loading and hauling to the Existing Quarry which hosts the processing plant, office, maintenance shop, office, product stockpiles, access driveways, tenant sites, and other associated quarry uses.

Per Knox County Code of Ordinances, Part II, Article 4.50.02, B.9, and the conditions imposed by the County in response to Vulcan's 2009 Use on Review application: (i) the construction of the berm is to be limited to the hours between 7:00 AM and 6:00 PM, Monday through Friday only; (ii) all blasting associated with the quarrying operation shall be permitted between 9:00 AM and 4:00 PM, Monday through Friday only; and (iii) all other quarry operations within the portion of the site that is zoned A (Agricultural) must be limited to the hours of 7:00 AM and 9:00 PM, Monday through Saturday. Vulcan will also require the use of low-sound backup alarms on all mobile equipment operating on the Quarry Extension, including during berm construction.

### **Water Quality**

Water quality is regulated by the Tennessee Department of Environmental & Conservation (TDEC). Water is collected in the quarry and allowed to settle in ponds before reuse or discharge. Primary sources of water include stormwater runoff, groundwater, plant wash water, and dust suppression water. Water is treated in the Existing Quarry and discharged under permit number TN0026484. Discharge water is tested for total suspended solids and pH, per permit conditions. Spill prevention and stormwater management plans are also in place to protect water quality.

### **Air Quality**

Air quality at the Existing Quarry is regulated under permit number 21-0138. Air quality at rock crushers, screens, and conveyor transfer points in the processing plant is controlled with water spray technology. The processing plant will remain on the Existing Quarry site, and will stay in its current location near Everett Road. Dust from existing paved and unpaved roadways is suppressed with use of a water truck. The Quarry Extension will adhere to the same regulations and procedures. See Exhibit 5.1 for more detailed information.

### **Reclamation**

Upon completion of mining activities at the Dixie Lee Quarry, final reclamation on the Quarry Extension will consist of slope stabilization where needed to control erosion, stormwater

management and general equipment removal and cleanup. The goal of reclamation will be to leave the site in a safe, environmentally sound condition that has future land value. The specific land uses will be dependent on future needs of the area once mining is complete, which today is estimated at 50+ years in the future and based on market demand.

**Dixie Lee Quarry**  
**EXHIBIT 5.1 Safety, Health and Environmental Regulatory Oversight**

**Vulcan Materials Company's Dixie Lee Quarry operates in compliance with local, state, and federal regulations designed to protect public safety, employee health, and the environment.** We work hard to be a good neighbor by meeting or exceeding local, state, and federal community-focused safeguards and regulatory requirements.

The Quarry Extension will be required to operate under regulations that are protective of people, land, air and water (on our site, at the property line and in the community). These include regulations and oversight from the Knox County Department of Air Quality Management, the Tennessee Department of Environment & Conservation (TDEC), the State Fire Marshal, the Mine Safety and Health Administration (MSHA), the U.S Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (USACE). Vulcan is, and has been, in compliance with the Knox County Zoning Ordinance and the operation of the Extension will be in compliance. This exhibit provides an overview of several key regulatory requirements and the measures implemented to ensure compliance.

**Blasting**

The Tennessee Blasting Standards were established in 1975 to safeguard life, health and property and to promote the public welfare through the establishment of standards and regulation of the use of explosives and blasting within the State of Tennessee. Tennessee Code Annotated, Title 68, Chapter 105, establishes the requirements for blasters, handlers and firms. The **State Fire Marshal's Office (SFMO)** is charged with the duty to enforce the Blasting Standards Act. No person, firm, association, corporation, or other entity can purchase, receive, or take possession of explosives without first obtaining registration from the **Tennessee Department of Commerce and Insurance (TDCI)**. The Act requires handlers, blasters, and blasting firms to obtain a license to detonate explosives in blasting operations in the State of Tennessee. The state fire marshal oversees the registration process to ensure applicants seeking licensure are qualified.

The SFMO also has the duty to investigate blasting complaints received from the public. The fire marshal will determine if there has been a violation of the Blasting Standards Act. If a violation is found, the department may refuse to grant, or may suspend, revoke, or refuse to renew licensing, and may assess a civil penalty.

## **Air Permit - Dust Regulations**

Vulcan holds a **Knox County Air Quality Management (KCAQM)** permit for the property under Permit 21-0138. Dust is regulated from a federal, state and local level. Fugitive dust and dust generated by blasting is regulated by our permit and the following regulations. The federal **National Ambient Air Quality Standards (NAAQS)** sets air quality standards under the Clean Air Act and codified in 40 CFR 50. The **U.S Environmental Protection Agency (US EPA)** approved Tennessee's State Implementation Plan (SIP) for the state's rules for air quality.

The regulations that govern fugitive dust at Vulcan's facility are KCAQMR Sections 22.3 and 24.3 and TAPCR 1200-03-05-.01(1). The operation is also regulated by KCAQMR Sections 17.1 and 17.3 and TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart OOO for dust emissions from the fixed equipment, roadways and stockpiles.

We use water trucks on haul roads and stockpiles, as well as water-suppression systems throughout the production plant (crushers, screens, and conveyor transfer points) to minimize dust emissions. Site personnel inspect these areas and dust-control equipment at least daily to verify their effectiveness and ensure compliance with air permit requirements and applicable regulations.

## **Safety**

The **U.S. Mine Safety and Health Administration (MSHA)** regulates safety at open-pit limestone mines through comprehensive federal standards covering blasting, ground stability, highwall safety, mobile equipment operation, air quality, dust control, workplace examinations, emergency preparedness, and miner training. The MSHA Mine ID for Dixie Lee Quarry is 40-01427. MSHA provides independent federal oversight through regular, unannounced inspections of mining operations. Inspectors routinely inspect mine sites and have authority to issue citations and corrective actions to ensure compliance and protect worker safety. If a safety or health issue is identified, MSHA has the authority to require corrective action, issue citations, assess penalties, and, when necessary, stop work until the condition has been addressed.

## **Health**

Miner health and safety are supported by the U.S. Mine Safety and Health Administration (MSHA) and the **National Institute for Occupational Safety and Health (NIOSH)**. MSHA establishes and enforces mandatory mine safety and health standards through inspections, compliance reviews, and enforcement actions, while NIOSH conducts independent research to identify hazards and develop science-based solutions that improve mining safety and health.

### *Health Continued*

MSHA's silica standard (30 CFR Part 60) regulates workplace silica exposure through air monitoring, exposure limits, dust-control measures, respiratory protection requirements, and medical surveillance programs. Silicosis is an occupational disease caused by prolonged over-exposure to respirable crystalline silica dust in the workplace. Because it is preventable but irreversible, MSHA requires mining operations to monitor and control silica exposures to protect worker health. Limestone at the Dixie Lee Quarry contains less than 5% silica, making it a relatively low-silica material compared with many other rock types.

To ensure compliance with these standards, Vulcan conducts employee exposure monitoring through workplace sampling and exposure assessments. The program also includes mandatory and voluntary medical examinations performed by qualified healthcare providers to help protect miner health and identify potential respiratory concerns at an early stage.

### **Erosion Prevention and Sediment Control**

Erosion prevention and sediment control measures are regulated by the **Tennessee Department of Environment and Conservation (TDEC)** through the state's NPDES permitting program. Facilities must identify potential sources of erosion and prevent sediment from leaving the site and impacting nearby waterways. Vulcan designs BMP controls with Professional Engineer, submits the plan to TDEC as part of the NPDES permit application and TDEC approves the controls with the issuance of the permit. These measures are installed, inspected, and maintained in accordance with TDEC requirements in Vulcan's NPDES permit (TN0026484) and the Tennessee Erosion Prevention and Sediment Control Handbook.

### **Streams & Wetlands**

If unavoidable impacts to streams or wetlands are necessary, Vulcan is regulated by the **US Army Corps of Engineers (USACE)** and the **TDEC**. We follow the process of getting a jurisdictional determination of all water features onsite, submitting the report to both agencies and receiving their concurrences. These concurrences allow Vulcan to determine which features would be necessary to impact or avoid. If features can be avoided, we go above the TDEC-recommended buffer distance of 30-feet and use a 50-foot buffer. If Vulcan plans on impacting a feature, Vulcan follows the permitting process of USACE and TDEC prior to impacting the feature.

### **Water Discharge**

Vulcan currently holds a National Pollutant Discharge Elimination System (NPDES) water permit issued by **TDEC**. The permit number is TN0026484 and is regulated under TAPCR 0400-40-05. The water discharge point is inspected at least daily, and water samples are collected twice monthly to ensure state water quality as required in Vulcan's permit.

## **Sinkholes**

Vulcan holds an Aquatic Resource Alteration Permit (ARAP) NR18MS.01 issued by **TDEC Division of Water Resources**. The regulations cover activities that may affect streams, wetlands, and other waters of the state. The permitting process is designed to protect water quality and aquatic resources by requiring project-specific review, avoidance and minimization of impacts, and mitigation where appropriate. Vulcan's permit authorizes activities associated with addressing naturally occurring sinkholes that have historically formed along Hickory Creek and Grable Branch downstream of the quarry near the Everett Road entrance. The permit under TAPCR 0400-40-07 allows Vulcan to repair sinkholes to maintain stream flow in the two creeks.

**Our blasting is regulated by the State of Tennessee as part of our mining permit which sets requirements for procedures, limits, monitoring, record keeping and reporting. The limits follow U.S. Bureau of Mines safety standards that are scientifically proven to be safe.**

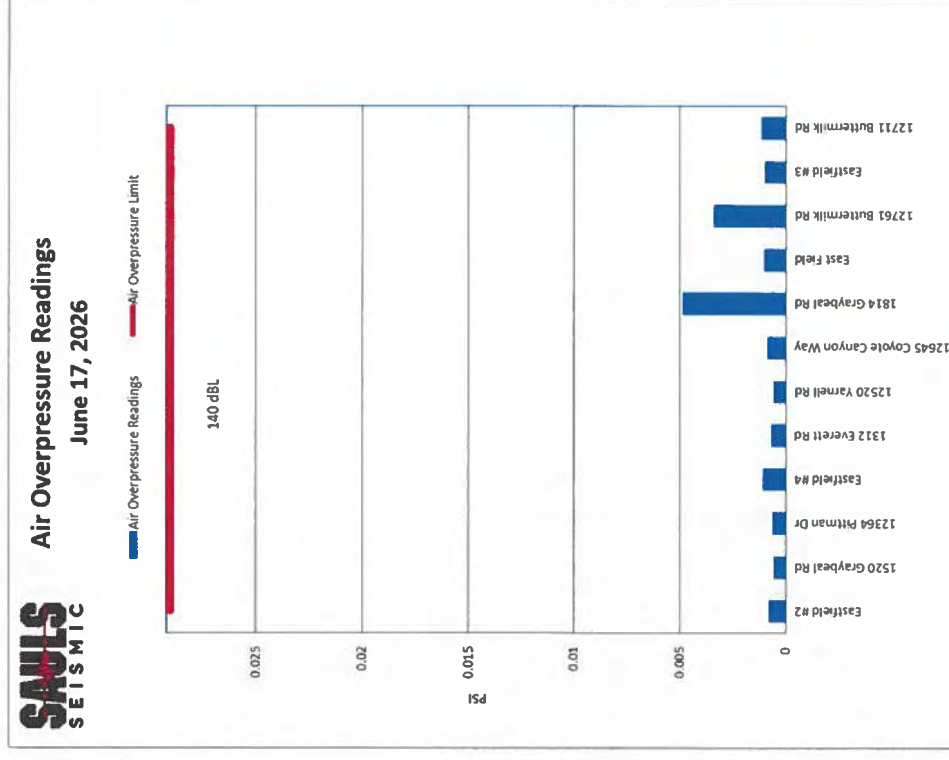
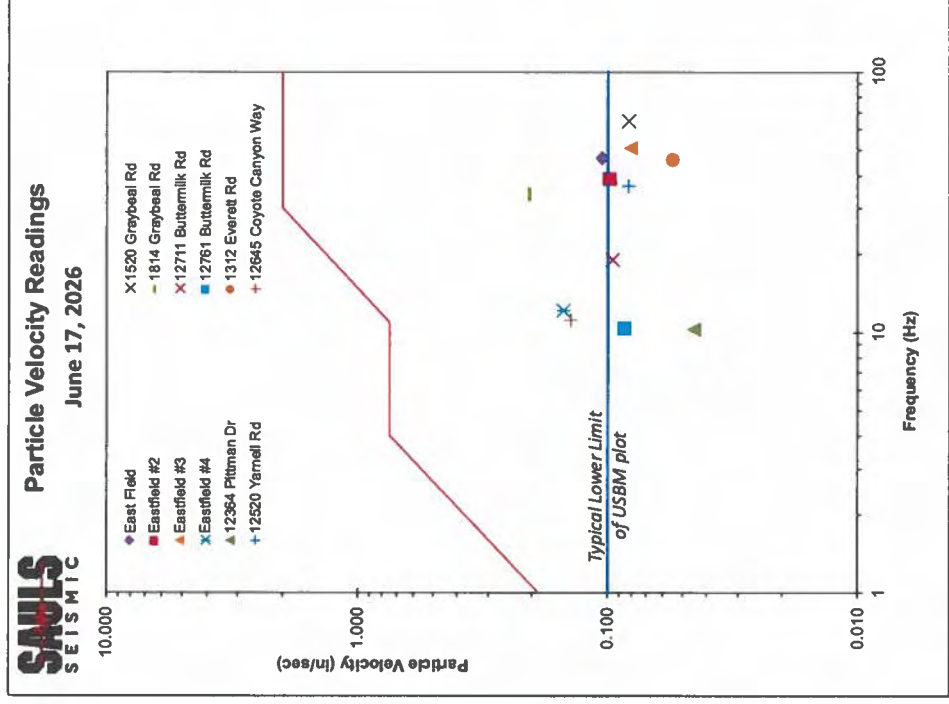
- We are required to monitor each blast at a distance no farther than the closest off-site regularly occupied structure not owned or leased by Vulcan.
- Our network of 12 active seismographs measure ground vibration and air blast overpressure and report the data to our engineers and operations team in real-time.



## EXHIBIT 5.2 - SAFE BLASTING

Our blasts are highly controlled, engineered events that last about a fraction of a second and occur during normal business hours.

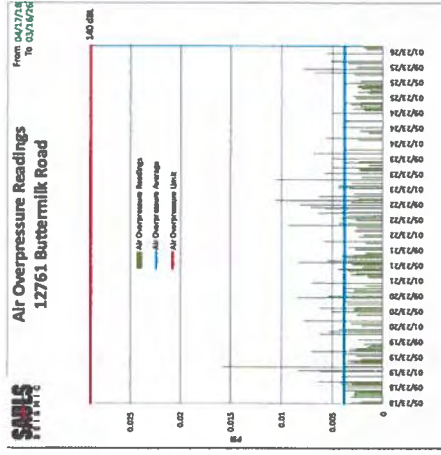
These two graphs show data from all active seismographs (existing and newly installed) from our June 17 blast.



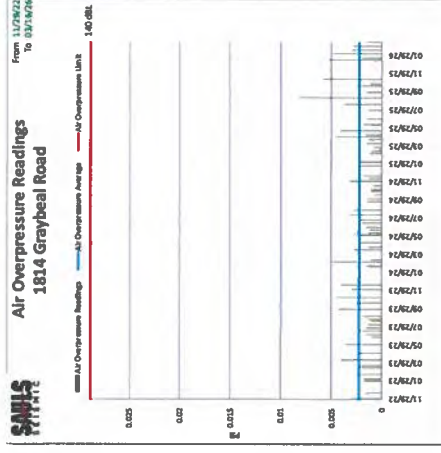
100% compliance.

6/17 BLAST DATA

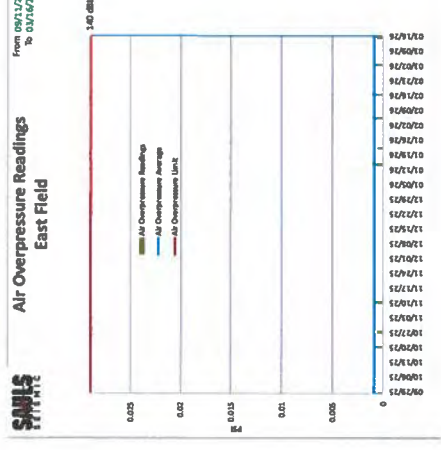
Each blast is individually engineered to account for the geology, geometry and location. Our engineers use laser profiling and digital modeling to predict specific shot behavior that is within ranges far below the permitted safety limits proven to be safe.



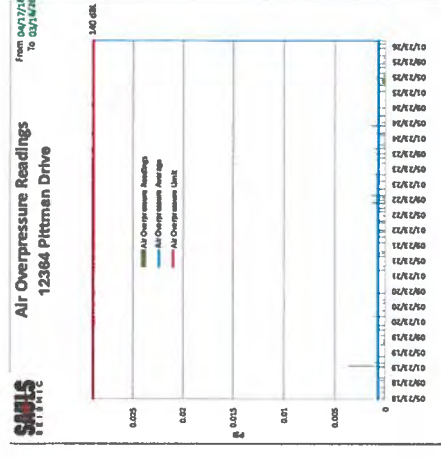
**Permit Limit: 140.0**  
**Average: 122.3**



**Permit Limit: 140.0**  
**Average: 113.6**



**Permit Limit: 140.0**  
**Average: 109.3**



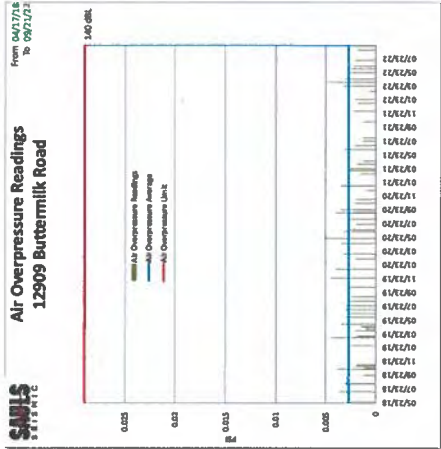
**Permit Limit: 140.0**  
**Average: 107.5**

We are required to be below the **red** line.

## AIR OVERPRESSURE READINGS (ACTIVE MONITORS)

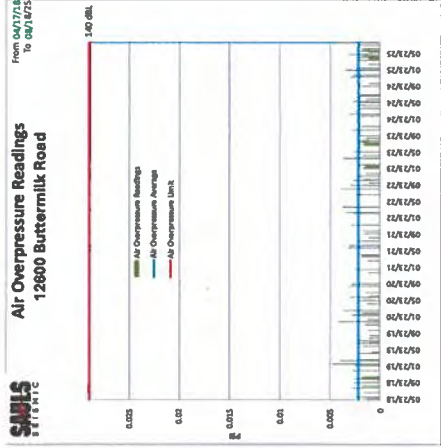


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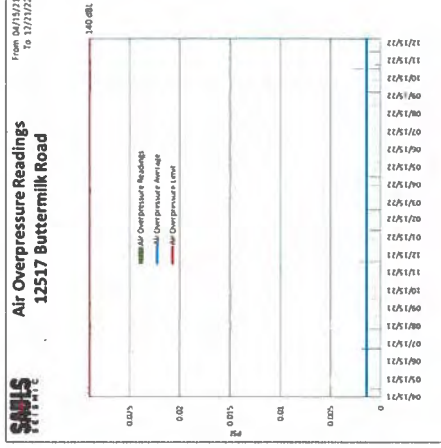
Permit Limit: 140.0

Average: 118.7



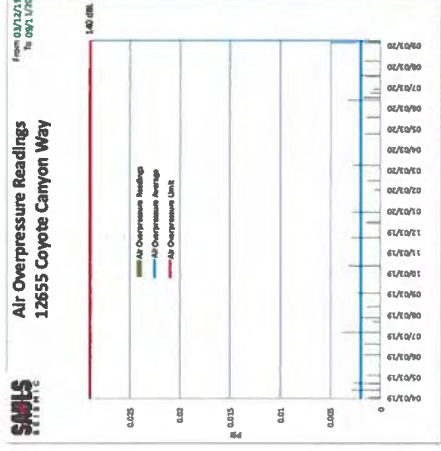
Permit Limit: 140.0

Average: 117.4



Permit Limit: 140.0

Average: 113.6



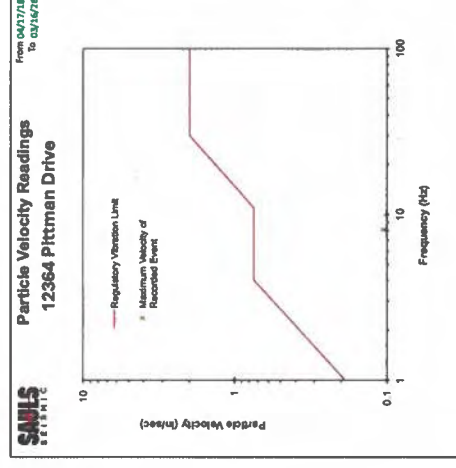
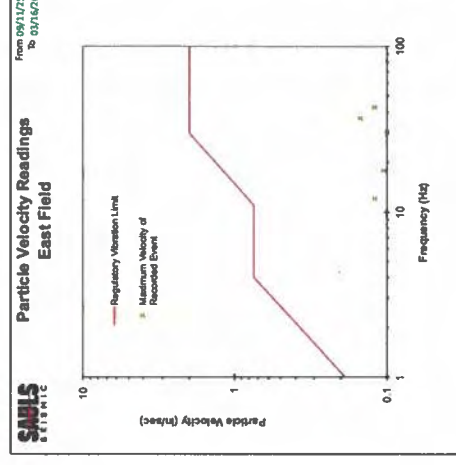
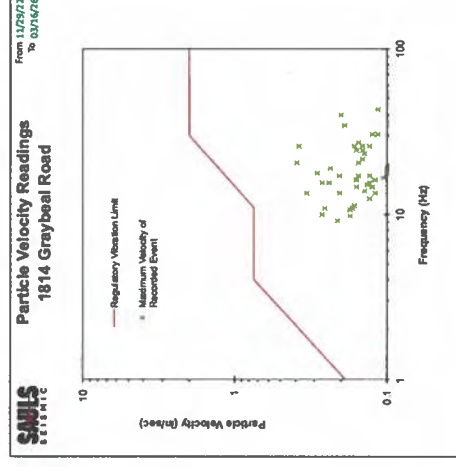
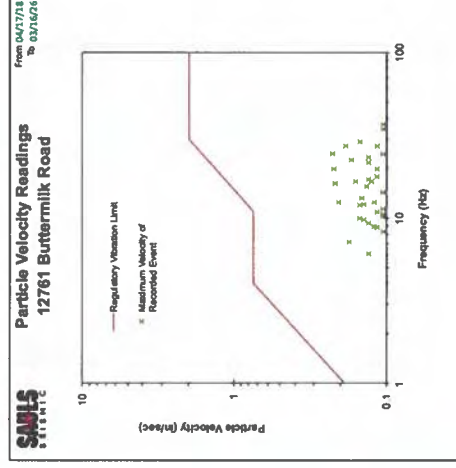
Permit Limit: 140.0

Average: 116.3

We are required to be below the red line.

AIR OVERPRESSURE READINGS (INACTIVE MONITORS)

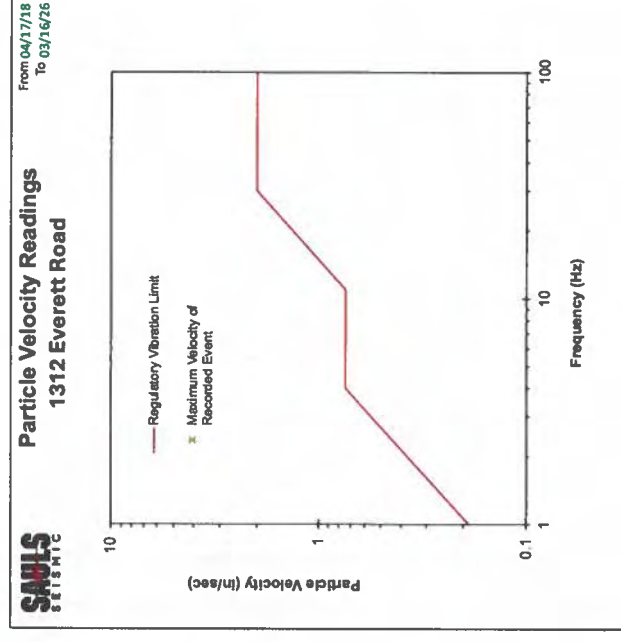
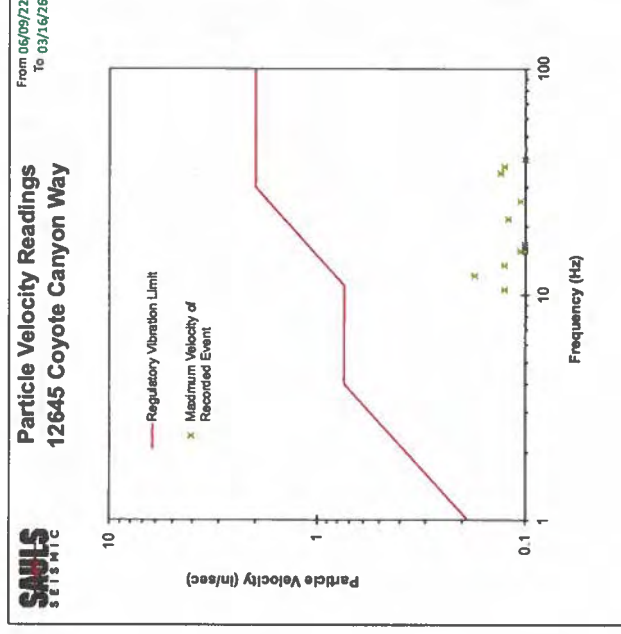
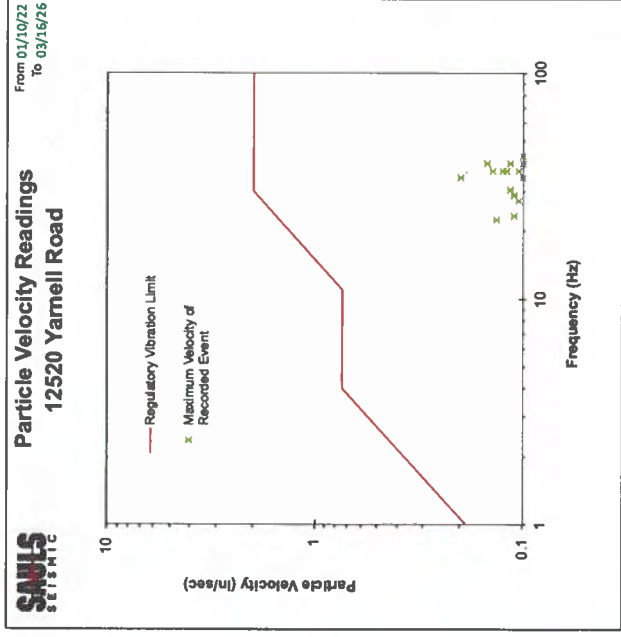
Scientific research has extensively shown that if the blasting activities do not produce vibration levels that exceed the limits set by the U.S. Bureau of Mines, the cosmetic damage potential (and thereby structural damage potential) from blasting is zero.



We are required to be below the **red** line.

VIBRATION READINGS (ACTIVE MONITORS)

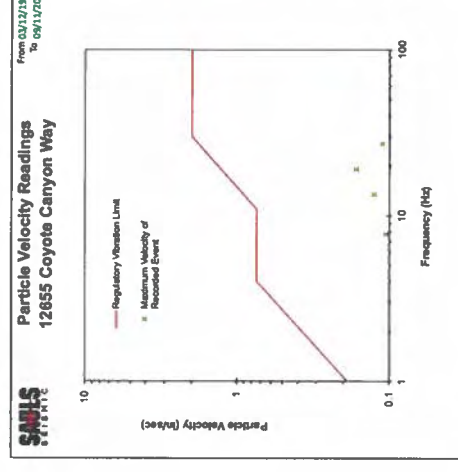
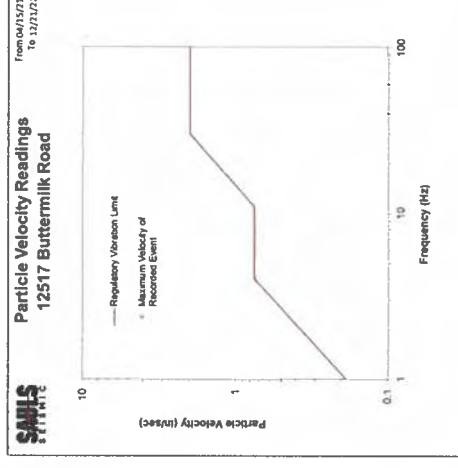
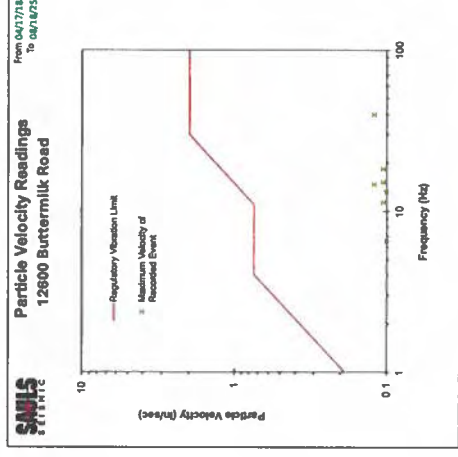
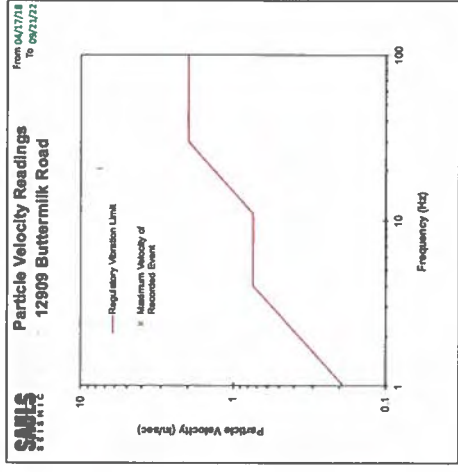
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We are required to be below the **red** line.

VIBRATION READINGS (INACTIVE MONITORS)

# OVERVIEW

To help meet the area's infrastructure and construction needs, we propose investing \$27+ million to activate ~60 acres along Graybeal Road (owned since 1989) for a Quarry Extension that will support a strong Knox County.

The extension will only be accessible internally via the existing quarry and will not create additional demand for our aggregates, nor will it increase customer truck traffic.

## Key Features

- Will be used exclusively for stone extraction
- No public access to the extension area
- No permanent buildings, structures, fixed production equipment, or lighting
- Will not increase production or customer traffic
- Significant vegetated screening berm
- Exceeds County safe buffer for mining by 125%

We are working with Knox County and stakeholders on a Graybeal Road realignment solution to maintain community mobility.

The extension is designed and will be operated to meet or exceed all state and federal requirements and regulations that are protective of safety, health, and the environment.

60% of the Extension Area is reserved for buffer, setback, vegetation, berms and a new Graybeal Road

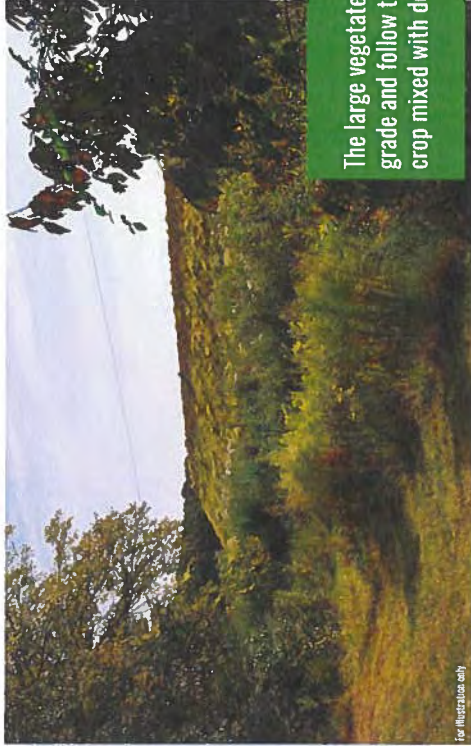
Total Project Area | ~61.4 acres (including Graybeal Road segment)



## EXHIBIT R 8.0 - QUARRY EXTENSION OVERVIEW (R. 7/8)

Community Relations Line: [dixielee@vmcmail.com](mailto:dixielee@vmcmail.com)

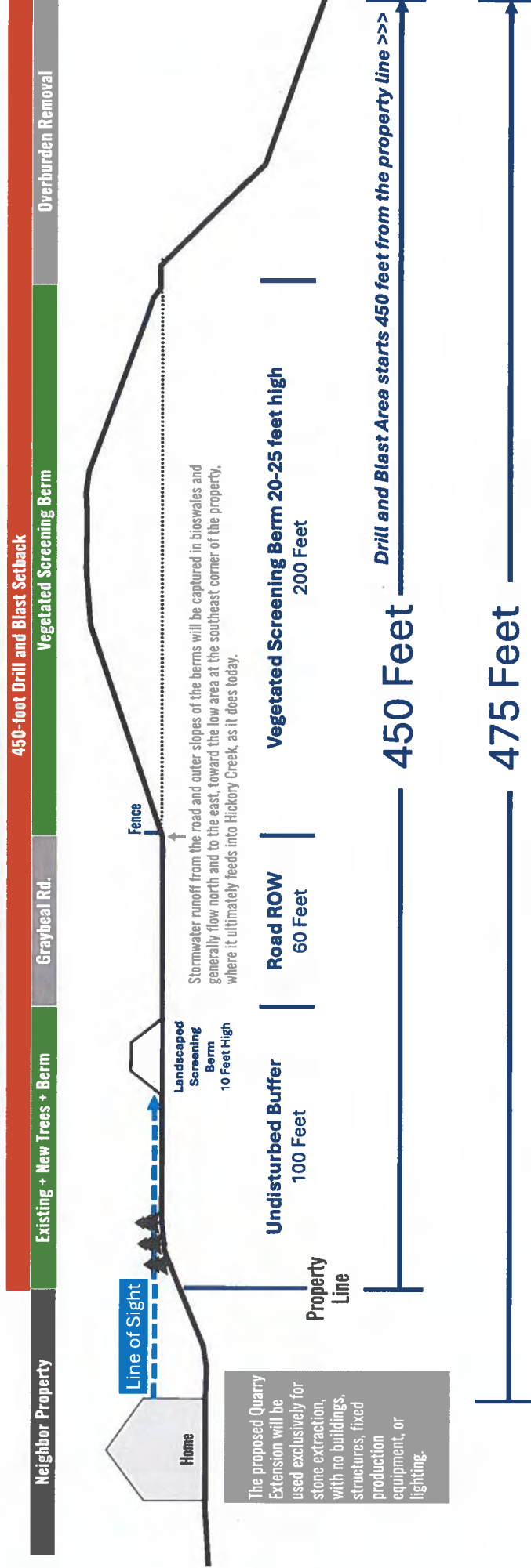
Consistent with the current quarry operations, the extension area will be screened by vegetated berms.



This conceptual view from Hickory Meadows Drive shows the general elevation of Hickory Meadows in relation to the neighboring Vulcan property that was acquired in 1989. Most of the existing trees within the 100-foot buffer will remain. Vulcan will augment the existing vegetation with a 15-foot Type A landscape area. And a 10-foot high screening berm.

Vulcan will construct a 20-25 foot high vegetated screening berm along the Buttermilk Rd. and Hickory Meadows Dr. sides of the Extension, with existing wetlands and vegetation serving as a buffer on the Pittman Dr. side. The entire Extension will be fenced.

The large vegetated screening berm will be approximately 20-25 feet high above grade and follow the existing topography. It will be planted with fast-growing nurse crop mixed with deep rooted perennial grasses, native grasses and wildflowers.

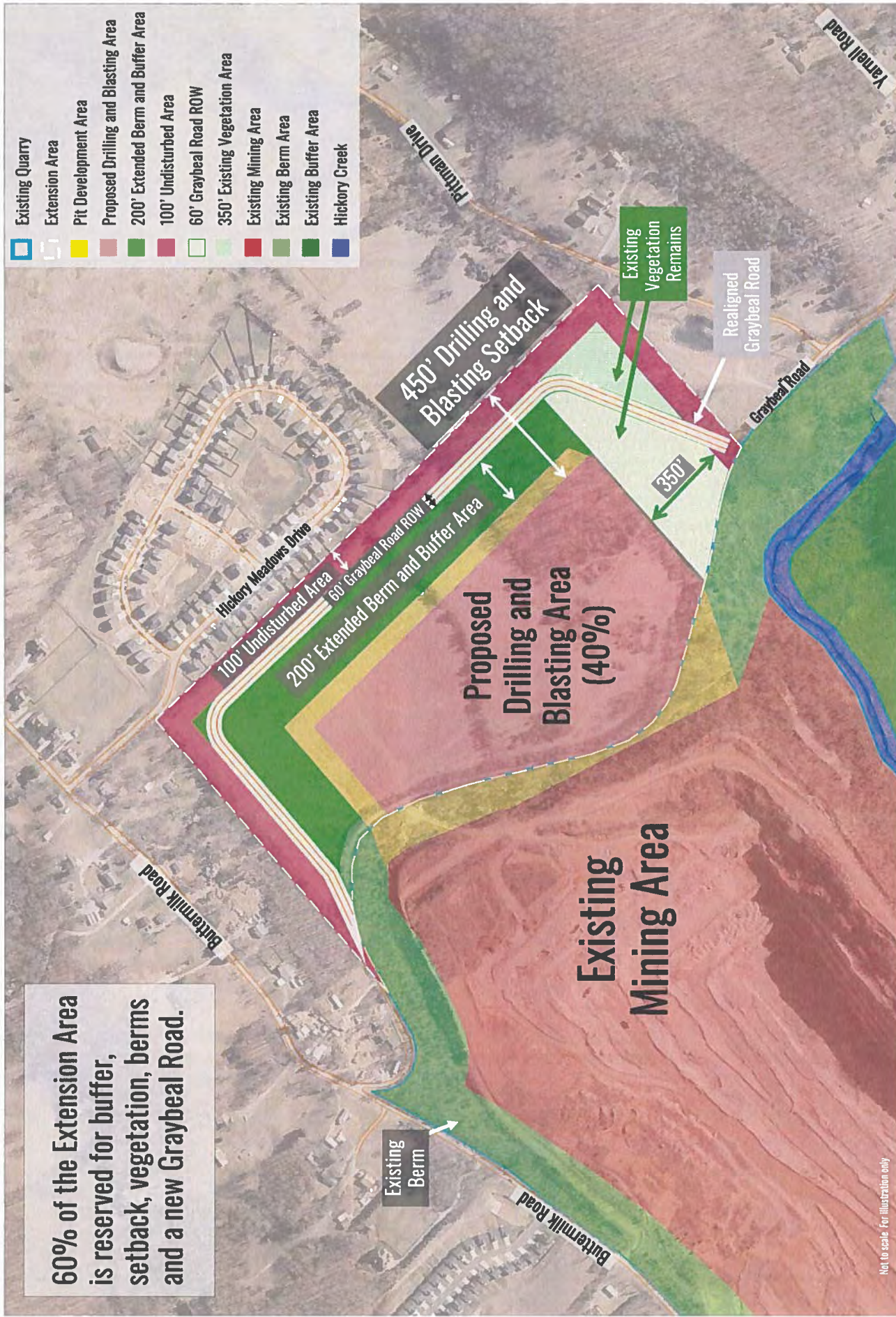


## BUFFER AND SCREENING PLAN (R. 7/8)

Perspective from Hickory Meadows Drive

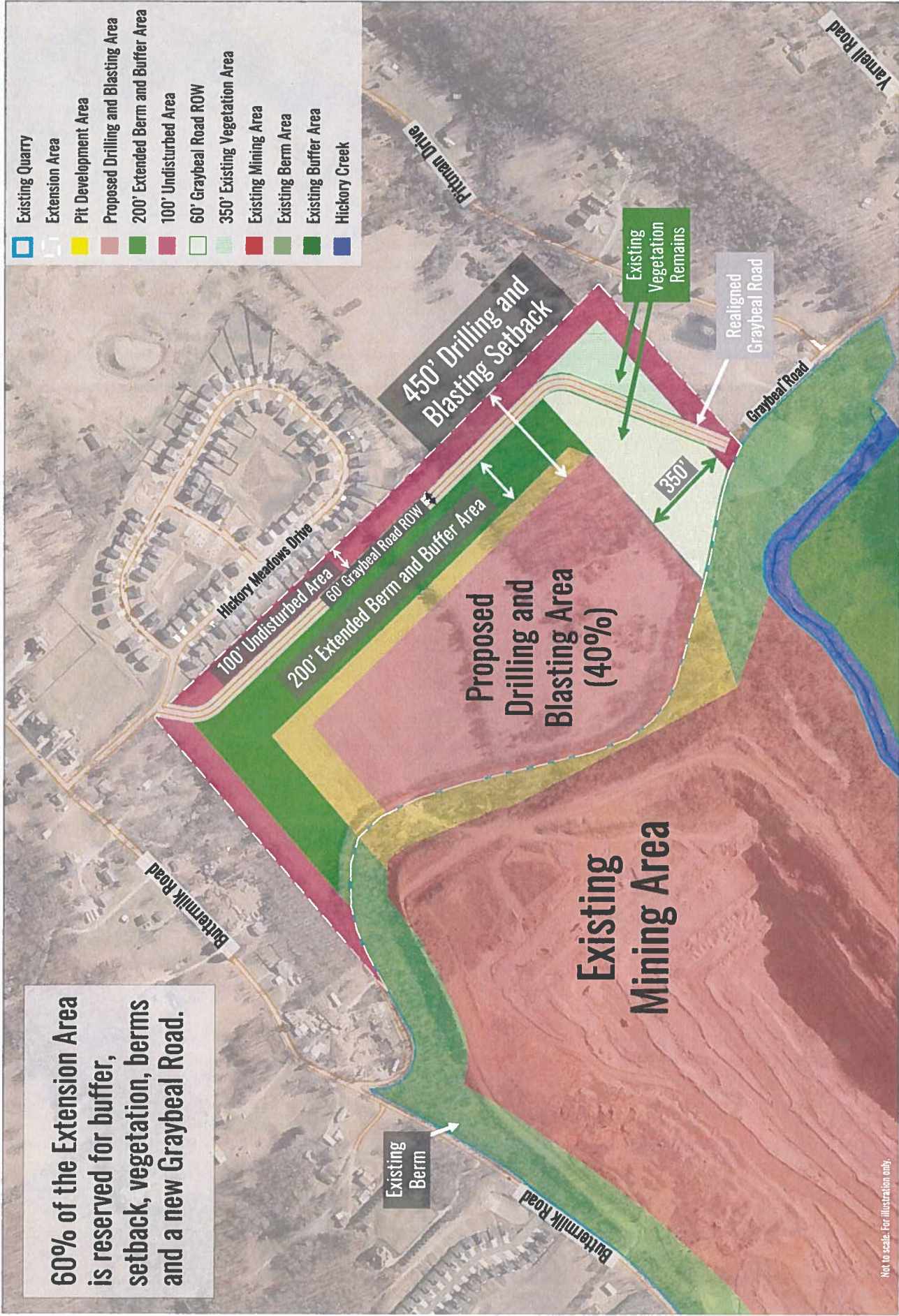
Community Relations Line: dixielee@vmcmail.com







## CONCEPT SITE PLAN B: Hickory Meadows Connection (R. 7/8)



## CONCEPT SITE PLAN B: Hickory Meadows Connection (R. 7/8)

Graybeal A

Overburden  
Removal and Pit  
Development

Existing  
Quarry



MAP SHOWING  
VULCAN CONSTRUCTION MATERIALS, LLC  
DIXIE LEE QUARRY  
CONCEPTUAL SITE PLAN MAP  
SITE LOCATION  
HOOD COUNTY, MORGANVILLE TOWNSHIP

Drawn By: HBC  
Scale: 1" = 125'  
Date: 08/10/2024

LEGEND

- PROPERTY PERMIT
- EXISTING QUARRY
- PUBLIC ROAD
- STRUCTURES
- EXISTING CONDUIT
- DECONTAMINATED WETLANDS
- OVERBURDEN REMOVAL AND PIT DEVELOPMENT
- EXISTING QUARRY

Map Certification

I, the undersigned, hereby certify that, to the best of my knowledge and belief, the information furnished herein is true and correct.

Signature: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_

1. Planning team studies maps provided by Civil and Environmental Consultants, LLC.
2. The maps are reviewed for compliance with applicable laws and regulations.
3. Aerial photography is reviewed for compliance with applicable laws and regulations.
4. Planning team and client discuss issues and provide for information and planning purposes.
5. The maps are reviewed for compliance with applicable laws and regulations.
6. The maps are reviewed for compliance with applicable laws and regulations.
7. The maps are reviewed for compliance with applicable laws and regulations.
8. The maps are reviewed for compliance with applicable laws and regulations.
9. The maps are reviewed for compliance with applicable laws and regulations.

Graybeal B

Existing  
Quarry

Material  
Placement and  
Buffer

Overburden  
Removal and Pit  
Development

MAP SHOWING  
VULCAN CONSTRUCTION MATERIALS, LLC  
DIXIE LEE QUARRY  
CONCEPTUAL SITE PLAN MAP  
SITE LOCATION  
ROAD COUNTY, MISSISSIPPI

Drawn By: HBC  
Scale: 1" = 125'  
Date: 06/05/2008

LEGEND

- PROPERTY LINE
- PROPOSED PROPERTY LINE
- PUBLIC ROAD
- STRUCTURE
- ZONING CHANGE
- DELEGATED ACTIVITY
- WATER BODY
- WETLANDS
- WETLANDS BUFFER

Map Certification

I, the undersigned, certify that the information shown on this map is true and correct to the best of my knowledge and belief, and that I am a duly licensed Professional Engineer in the State of Mississippi.

Signature: \_\_\_\_\_  
Registration No.: \_\_\_\_\_

1. Prepare these plans based on information provided by the client and the client's representative.
2. Verify the information provided by the client and the client's representative.
3. Verify the information provided by the client and the client's representative.
4. Verify the information provided by the client and the client's representative.
5. Verify the information provided by the client and the client's representative.
6. Verify the information provided by the client and the client's representative.
7. Verify the information provided by the client and the client's representative.
8. Verify the information provided by the client and the client's representative.
9. Verify the information provided by the client and the client's representative.
10. Verify the information provided by the client and the client's representative.