



Planning Commission

August 26, 2025 6:00 PM,

City Hall, 111 E. Maple Avenue (Ground Floor), Council Chambers

CALL TO ORDER

ROLL CALL

ELECTION OF OFFICERS

Chair and Vice-Chair

CONSENT AGENDA

The Consent Agenda consists of routine items of business to be acted upon by the Planning Commission with little or no public discussion. The staff or committee recommendation for each item is included in the Planning Commission packet. Any item may be removed by a commissioner or staff member to become part of the regular agenda.

1. **Planning Commission Minutes – August 12, 2025**

PUBLIC HEARINGS

1. **Case 25-175-04 - UDO Amendment #75 – Fuel Sales & Auto Repair** – An Amendment to the Unified Development Ordinance pertaining to fuel sales and auto repair.
2. **Case 25-200-07 – Special Use Permit - 4023 S. Noland Road** – A request by Wally's to operate a gas station.

ROUNDTABLE - NEXT MEETING SEPTEMBER 9, 2025

ADJOURNMENT



Planning Commission Minutes

August 12, 2025 6:00 PM

City Hall, 111 E. Maple Avenue (Ground Floor), Council Chambers

CALL TO ORDER

A meeting of the Planning Commission was held at 6:00 PM on 8/12/2025, in the 111 E Maple Avenue, Independence, MO 64050. The meeting was called to order.

ROLL CALL

Upon roll call, the following members were present - Eric Ashbaugh, Edward Nesbitt, Dan O'Neill, Virginia Ferguson, Michael Young. Absent - Laurie Dean Wiley, Jose Torres.

CONSENT AGENDA

The Consent Agenda consists of routine items of business to be acted upon by the Planning Commission with little or no public discussion. The staff or committee recommendation for each item is included in the Planning Commission packet. Any item may be removed by a commissioner or staff member to become part of the regular agenda.

1. Planning Commission Minutes – July 29, 2025

Motion

Commissioner Edward Nesbitt made a motion to approve the Consent Agenda. Commissioner Michael Young seconded the motion. The motion was approved Yes 5, No 0, Abstained 0.

PUBLIC HEARINGS

1. **Case 25-100-17 – Rezoning – 710 & 720 W Maple Ave** – A request to rezone the properties from R-30 (High Density Residential) and C-2 (General Commercial) to R-6 (Single Family Residential).

Staff Presentation

Brian Harker presented the case. Mr. Harker presented the Commission with a vicinity map, noting the area and surrounding zoning. He presented the Commission with an aerial map indicating the project area and explained the surrounding land uses.

Applicant Comments

John Roberts, 4335 MGee St, Kansas City, MO, described his plan to renovate both properties. Currently, 720 does not have utility hookups and would just be used for storage.

Public Comments

No public comments.

Motion

Commissioner Edward Nesbitt made a motion to approve the case. Commissioner Dan O'Neill seconded the motion. The motion was approved Yes 5, No 0, Abstained 0.

2. **Case 25-400-04 – Short-Term Rental – 2322 S. Sterling Ave** – A request to operate a Short-Term Rental.

Staff Presentation

Gabe Glaser presented the case. Mr. Glaser presented the Commission with a vicinity map, noting the area and surrounding zoning. He presented the Commission with an aerial map indicating the project area and explained the surrounding land uses. Mr. Glaser reviewed the conditions of approval.

Applicant Comments

Alexander Valdez, 2601 Oakley, Kansas City, MO, in response to Commissioner Nesbitt's question, Mr. Valdez stated he had other rental properties, but this is his first short-term rental and is in agreement with the conditions outlined by Staff.

Public Comments

No public comments.

Motion

Commissioner Dan O'Neill made a motion to approve the case. Commissioner Virginia Ferguson seconded the motion. The motion was approved Yes 5, No 0, Abstained 0.

ROUNDTABLE - NEXT MEETING AUGUST 26, 2025

Mr. Arroyo reviewed the upcoming cases to be discussed at the next meeting.

ADJOURNMENT

The meeting was adjourned at 6:28 p.m.

MEETING DATE: August 26, 2025

STAFF: Rick Arroyo, Assist Community
Development Director

PROJECT NAME: UDO Amendment #75

CASE NUMBER / REQUEST: **Case 25-175-04 – UDO Amendment #75 – Motor Vehicle Repair / Gasoline and Fuel Sales** – An Amendment to the Unified Development Ordinance pertaining to motor vehicle repair and gasoline and fuel sales.

APPLICANT: City of Independence

PUBLIC NOTICE:

- Public notice published in Independence Examiner – August 9, 2025

FURTHER ACTION:

Following action by the Planning Commission, this UDO Amendment is scheduled for first reading by City Council on September 15, 2025 and the public hearing/second reading on October 6, 2025.

RECOMMENDATION

Staff recommends **APPROVAL** of the proposed amendment to the Unified Development Ordinance.

PROJECT DESCRIPTION & BACKGROUND INFORMATION

PROJECT DESCRIPTION:

A proposed Amendment #75 to the Unified Development Ordinance (UDO) related to motor vehicle repair and gasoline and fuel sales for properties within four hundred feet of an interstate.

BACKGROUND & HISTORY:

In 2023 amendments were made to the UDO to help prevent land use conflicts with auto related uses and the potential of altering the character of commercial corridors. One such amendment added a 750-foot separation requirement from other auto related uses for gasoline and fuel sales, and motor vehicle repair.

Since that time staff have recommended amendments to exempt this separation requirement for long standing business along the Noland Road corridor, better known as the Miracle Mile, to help alleviate building challenges for business wishing to expand.

This amendment seeks to expand this exemption to properties within four hundred (400) feet of an interstate.

This amendment will better assist new fueling stations or vehicle repair businesses to invest and build within 400 ft of an interstate. This amendment would also allow these uses to expand and upgrade, if necessary, in the future.

EXHIBITS

1. Section 14-403-08 Separation from Other Automotive Uses
2. Section 14-418-12 Separation from Other Automotive Uses

14-403 GASOLINE AND FUEL SALES

14-403-08 Separation from other automotive uses

The property containing a gasoline and fuel sales facility shall not be located within 750 feet of a property containing the following uses:

- Used car lot;
- Car wash;
- Motor vehicle repair, limited and general;
- Motor vehicle rental agency;
- Vehicle storage/tow lot;
- Tow lot, limited;
- Heavy vehicle dealership;
- Gasoline and fuel sales.

This separation requirement shall not apply for properties that are within 400 feet of an interstate.

14-418 MOTOR VEHICLE REPAIR

14-418-12 Separation from other automotive uses

The property containing a motor vehicle repair shall not be located within 750 feet of a property containing the following uses:

- Used car lot;
- Car wash;
- Motor vehicle repair, limited and general;
- Motor vehicle rental agency;
- Heavy vehicle dealership;
- Vehicle storage/tow lot;
- Tow lot, limited;
- Gasoline and fueling sales.

This separation requirement shall not apply to properties within 1,320 feet of Noland Road between 33rd Street to Aberdeen Street **and properties within 400 feet on an interstate.**

MEETING DATE: August 26, 2025

STAFF: Gabe Glaser, Planner

PROJECT NAME: Wally's

CASE NUMBER/REQUEST: Case 25-200-07 – Special Use Permit - 4023 S. Noland Road – A request by Wally's to operate a gas station.

APPLICANT: Cole & Associates

OWNER: Nate Hale, Wally's

PROPERTY ADDRESS: 4023 S. Noland Rd

SURROUNDING ZONING/LAND USE:

North: R-6 (Single-Family Residential) / Single-Family Homes
East: R-6 (Single-Family Residential) / Single-Family Homes
South: Interstate 70
West: C-2 (General Commercial) / Food service establishments, general retail sales, and gas stations

PUBLIC NOTICE:

- Letters to property owners – August 7, 2025
- Public Notice published in the Independence Examiner – August 9, 2025
- Signs posted on property – August 8, 2025

FURTHER ACTION:

Following action by the Planning Commission, this rezoning request is scheduled for first reading by the City Council on September 15, 2025 and the public hearing/second reading on October 6, 2025.

RECOMMENDATION

Staff recommends **APPROVAL** of this Special Use Permit request, subject to the following conditions:

1. The applicant shall provide confirmation of negotiations and documentation for all necessary rights-of-way, easements, construction easements, or all other contracts negotiated from all property owners necessary to build the required improvements prior to issuance of permits for construction.
 2. The applicant shall construct all improvements to the street network provided for in the recommendations of the traffic impact study. Further modifications to the plans for street network improvements may be required. All improvements shall be reviewed and approved by the city and state prior to the issuance of a construction permit.
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3. A striping and signage plan for the site shall be provided and approved by the city to manage traffic circulation. This plan shall be submitted with the engineering plans.
4. Stream buffer plan and stormwater quality requirements are required to be addressed during the building permit review and engineering plan issuance process.
5. A final stormwater study shall be submitted as part of the final construction plans. The applicant is required to provide a storm water layout sheet, drainage map and profiles of stormwater lines; and an operations and maintenance plan will be required as part of the stormwater plans.
6. A development agreement between the City and the applicant shall be executed for the sanitary pipe replacement, anticipated as part of a capital improvement project currently in the design stage.
7. The building design and materials used in the construction of the proposed structures will need to conform with Section 14-506 of the city code. This will be evaluated at the final site plan stage.
8. The applicant shall adjust their photometric plan, including parking lot and street lighting fixtures, in accordance with city codes, traffic and ADA standards.
9. Sidewalks are required on both sides of Lynn Court Drive and Canterbury Place and shall be installed in accordance with the Design and Construction Manual.
10. The property shall be platted in accordance with the city code.
11. Applicant shall submit a site plan application in accordance with Section 14-705 of the city code.
12. A 6-foot tall masonry screening wall shall be provided along the northern and eastern property boundaries abutting residential neighborhoods.
13. Final approved construction permits shall be issued by the city and state prior to construction of proposed improvements. All public infrastructure shall be completed prior to the issuance of a final certificate of occupancy.
14. This special use permit has not been reviewed for final engineering design compliance. All development engineering must be designed in accordance with City of Independence standards and specifications prior to construction.

PROJECT DESCRIPTION & BACKGROUND INFORMATION

PROJECT DESCRIPTION: A request by Wally's to operate a gas station.

Current Zoning: C-2 (General Commercial)

Proposed Zoning: C-2 (General Commercial)

Current Use: Vacant lot

Proposed Use: Gas Station

Proposed Building Sq Ft: ±54,000 ft²

Zoning History:

The subject site was annexed into the City of Independence in 1960. Following adoption of the Zoning Ordinance, in 1965, the city assigned the site an R-4 (Apartments) zoning classification. Soon after, the city council approved a requested rezoning of the subject site to C-P-3, in 1969. The city adopted amendments to the Zoning Ordinance, in 1980, and the zoning classification of

the subject site was updated to C-2. The zoning classification of the subject site has remained C-2 since. The city council, most recently, approved the demolition of a vacant commercial building in 2023. The site is currently development ready and consists of predominantly vacant land.

Proposal:

Wally's requests Special Use Permit approval for a gas station located at 4023 S Noland Rd. The existing Northern Tool & Equipment Store/Office Depot would be removed, and the proposed Wally's Travel Center is planned to enclose a building area $\pm 54,000$ ft² in size and provide 84 fuel pumps. The application proposes a paved area $\pm 350,000$ ft² in size, constituting 42.5% of the total site. An unpaved area $\pm 420,000$ ft² in size, constituting 51% of the total site, will consist of a Second Order Stream and its component riparian areas, stormwater detention facilities, and landscaping. The applicant intends to make improvements to the street network to accommodate the proposed development.

Physical Characteristics of Property:

The subject site is ± 18.9 ac in size and consists of predominantly vacant land. An existing structure, $\pm 24,000$ ft² in size, remains on the site. The site is adjacent to Interstate 70, in close proximity to its interchange with Noland Road. The site can be accessed via Lynn Court Drive from the west and Canterbury Place from the north. A Second Order Stream traverses the southern property boundary.

Characteristics of the Area:

Located in close proximity to the Interstate 70 and Noland Road interchange, the surrounding area constitutes a prominent commercial corridor and a major entrance to the city. This commercial corridor contains a mixture of food service establishments, lodging establishments, retail sales, gas stations, and office spaces. Residential neighborhoods developed in the 1960's abut the subject site to the north and east.

ANALYSIS

Consistency with *Independence for All*, Strategic Plan:

Independence for All Strategic Plan 2022-2026 encourages the attraction and retention of quality employers. Approval of the proposed Special Use Permit achieves the goal of increasing the economic prosperity of the community.

Comprehensive Plan Tools and Policies for the Current Designation:

Imagine Independence Comprehensive Plan 2040 designates a Community Commercial future land use for this property. The Community Commercial land use category is designated for retail, restaurant, office, personal services and residential uses with building footprints from 30,000 ft² up to 400,000 ft² and is intended to serve surrounding neighborhoods within a 1-to-3-mile radius. *Imagine Independence* directs the city to foster redevelopment opportunities to revitalize unused and/or underused property. The plan's guiding principles encourage the promotion of growth, innovation and investment, and ensure that major entrances and corridors are attractive and inviting.

Historic and Archeological Sites:

There are no apparent historic or archeological issues with this property.

Public Utilities:

Utilities exist at the subject site. However, infrastructure is planned to be modified/expanded to accommodate the proposed development.

A development agreement with the city is expected to be needed for sanitary pipe replacement, anticipated as part of a capital improvement project currently in early procurement steps. All public sanitary mains shall be located either within dedicated utility easements or public right of way. and all design, materials and construction shall be in accordance with City of Independence standards and specifications.

The applicant has worked closely with city staff and all comments from Municipal Services, Water Engineering have been addressed or acknowledged. Based on the preliminary plans submitted as part of this application, Municipal Services, Water Engineering recommends approval of the Special Use Permit. Construction documents and engineering plans will need to be submitted for modifications/expansions of the public water main.

Floodplain/Stream Buffer:

A Second Order Stream, as designated by the Independence Stream Order Map, traverses the southern property boundary. In accordance with Article 5, Chapter 7 of the City Code, second order streams require buffers—a strip of land extending along both sides of a stream—105 feet in width on each side of the stream bank, consisting of vegetation, including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system. The stream buffer and its component zones will need to be fully delineated on building constructions plans and plat documents. The buffer plan will need to be in accordance with the City Code 7.05.004 - Plan requirements.

CIP Investments:

The city's upper Adair interceptor design project plans to re-route sanitary sewer flows crossing I-70 from areas southwest of I-70 and Noland Road to reduce capacity issues. This project is currently slated for the 2025-26 and 2026-27 fiscal years.

Elevations:

Elevations for the proposed building have been submitted as part of the application. The design of the proposed building meets the requirements prescribed by Section 14-506-01-C. and incorporates horizontal and vertical interest and variety. All façade materials used will need to conform with Section 14-506-01-B.

Driveways and Sidewalks:

The applicant has provided a preliminary traffic circulation plan. Access to the site would be provided primarily via Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access from 39th Street. A striping and signage plan for the site will be completed as design progresses, for traffic management in and out of the site.

Sidewalks have been provided, as part of the preliminary plans, along the west side of Canterbury Place and the north side of Lynn Court Drive. However, in accordance with Section 14-301-06-F of the city code, sidewalks are required on both sides of streets in commercial districts and must be installed in the public right-of-way in accordance with the Design and Construction Manual.

Streets and Access:

A traffic impact study has been conducted by the Lochmueller Group on behalf of the applicant. The study was conducted in coordination with the city and the Missouri Department of Transportation (MoDOT). Access to the site would be provided primarily via Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, from 39th Street. This intersection is proposed to be modified to restrict left (or westbound turning traffic) onto 39th Street given the proximity to other intersections. As part of the study, several recommendations were made to accommodate the proposed development. As well as the addition of dedicated turning lanes to accommodate traffic flow to and from the site, the applicant proposes a full reconstruction and realignment of Noland Road and Lynn Court Drive. All work will be completed in coordination with the city and MoDOT. Additionally, further modifications to the traffic plan may be required, after a full review of the traffic impact study has been completed by the city and MoDOT.

Landscaping:

Compliance with all landscape requirements prescribed by Sections 14-503 and 14-403-02 of the city code have been addressed by the applicant. A comprehensive landscape plan has been submitted as part of the application and predominantly specifies plant species native to North America.

REVIEW CRITERIA

Recommendations and decisions on Special Use Permit applications must be based on consideration of all the following criteria:

1. **Compatibility of the proposed use with the character of the neighborhood.**
The subject site abuts a residential neighborhood, developed in the 1960's, to the north and east. West and south of the subject site is the location of a prominent commercial district. A variety of developments are located within the neighboring commercial district, including shopping centers, office uses, and food service establishments. The proposed gas station fits within the character of the neighborhood.
2. **The extent to which the proposed use is compatible with the adjacent zoning and uses.**
Located within a prominent commercial corridor, a variety of land uses characterize the surrounding area. Properties in the surrounding commercial corridor are designated C-2 (General Commercial) and C-1 (Neighborhood Commercial). The proposed use is compatible with the adjacent zoning and uses.
3. **The impact of the proposed use on public facilities.**
Utilities exist at the subject site. However, infrastructure is planned to be modified/expanded to accommodate the proposed development. The city has approved preliminary plans for the water main extension to the subject site. A development agreement with the city is expected to be needed for sanitary pipe replacement, anticipated as part of a capital improvement project currently in early procurement steps.
4. **The suitability of the property for the permitted uses to which it has been restricted under the applicable zoning district regulations.**

The current use regulations that apply to gas stations require 750 feet of separation between establishments. Under the current use regulations, the proposed Special Use Permit would not be allowed. However, a concurrent application to amend use regulations for fuel sales would permit the proposed use.

5. **The extent to which the proposed use may injure or detrimentally affect the use or enjoyment of property in the area.**

Staff have reviewed the Special Use Permit application and supplemental materials for conformity with city codes and standards, with the goal being that the proposed development will not injure or detrimentally affect the use or enjoyment of property in the area. Pending approval of this Special Use Permit, the applicant will need to submit a Final Site Plan, construction plans for infrastructure and building permits for all construction. Additionally, recommendations from the Missouri Department of Transportation (MoDOT) must be met as they pertain to the traffic network anticipated to be affected by the proposed development.

6. **The extent to which the proposed use will create excessive stormwater runoff, air pollution, noise pollution or other environmental harm.**

Although preliminary plans have been reviewed by city staff, the applicant will need to submit final construction plans in conformity with all applicable city codes and standards. A final stormwater study stamped and sealed by a licensed professional will need to be submitted to the city, ensuring the proposed development is able to meet target stormwater runoff rates. Additionally, recommendations from the Missouri Department of Transportation (MoDOT) must be met as they pertain to the traffic network anticipated to be affected by the proposed development.

7. **The extent to which there is a need for the use in the community.**

Imagine Independence Comprehensive Plan 2024 encourages the revitalization of unused and underused properties. The proposed development has the potential to provide an anchor destination attraction at a major entrance to the city.

8. **The ability of the applicant to satisfy any requirements applicable to the specific use imposed pursuant to this article.**

The applicant has, thus far, addressed and/or acknowledged all of staffs' comments related to the preliminary plans for this project.

9. **The extent to which public facilities and services are available and adequate to meet the demand for facilities and services generated by the proposed use.**

The infrastructure is in place at the subject site. However, infrastructure is planned to be modified/expanded to accommodate the proposed development. The applicant has worked closely with city staff and the Missouri Department of Transportation (MoDOT) through the application process thus far. And city departments have approved preliminary plans for modifications to infrastructure. Further review and recommendations will be necessary to ensure proposed modifications to the infrastructure meet all applicable local and state codes and standards.

10. **Conformance of the proposed use to the comprehensive plan and other adopted plans and policies.**

Imagine Independence Comprehensive Plan 2040 encourages the revitalization of unused and underutilized properties. Furthermore, the guiding principles encourage the promotion of growth, innovation and investment, and ensure that major entrances and corridors are attractive and inviting.

11. The extent to which the use will impact sustainability or revitalization of a given area.

Approval of the Special Use Permit supports the revitalization of an unused and/or underused property located within a prominent commercial district and entrance to the city.

EXHIBITS

1. Narrative
2. Application
3. Notification letter
4. Address List
5. Notification Area Map
6. Affidavit
7. Site Plan Set
8. Building Elevations
9. Traffic Study (excerpted)
10. Preliminary Stormwater Analysis
11. Zoning Map
12. Comprehensive Plan

May 29th, 2025

Community Development
Planning & Zoning
111 E. Maple Avenue
Independence, MO 64050
(816) 325-7421

RE: 24-0011
Wally's
4023 S Noland Road
Independence, MO 64055

Wally's Home of the Great American Road Trip® Take a break! Great service, tasty food, clean restrooms and unexpected necessities. Wally's is your stop for the cleanest restrooms, tasty BBQ, warm popcorn to go, fresh coffee and unexpected necessities. Stop in on your way!

On a monotonous journey home after a ski trip in Colorado, cousins Michael Rubenstein and Chad Wallis, who grew up in rural Missouri along Route 66, had an epiphany. To make any such boring drive more interesting, they would plan, construct, and operate a convenience store. They started a very in-depth and meticulous process of determining location, brand, and who they wanted to be. President and CEO Rubenstein, who had experience in real estate and supply logistics, knew how to build convenience stores, and Chairman Wallis, who had experience running c-stores and gas stations, knew how to run them. They genuinely wanted to develop a brand that resonated with their Midwestern heritage and concentrate on the family traveler.

The fuel to be provided at Wally's is unbranded and supplied by Wallis' family business, Wallis Companies, which operates Mobil/On the Run stores in the St. Louis area. There will be 42 dispenser islands and fuel types include:

- Regular unleaded 87 grade,
- Mid-grade unleaded 89 grade,
- Premium unleaded 93 grade (all of which contain up to 10% ethanol),
- #2 diesel (contains up to 10% bio-diesel blend) and
- DEF (diesel exhaust fluid).

Electric vehicle charging stations will also be provided. Inside the approximately 54,000 square foot convenience store there will be three main kiosks dubbed "experience stations". The first experience station is Wally's BBQ, with a carving station that features barbeque and other types of sandwiches. Customers can watch their food being prepared. The second experience station is Wally's café, which offers specialty drinks. The fountain will have 60 flavors. The frozen beverage area will feature the Sloosh in 12 flavors. In keeping with the retro vibe, the fountain will have old school beverage labels from the 70s and 80s. The area will also have a kegerator dispenser for nitro cold brew and kombucha. The store will also sell beer, ice cream, pizza, a selection of beef jerky, and baked goods as well as a jerky bar. Among the other merchandise are travel gear, camping supplies, apparel, and various other souvenirs.

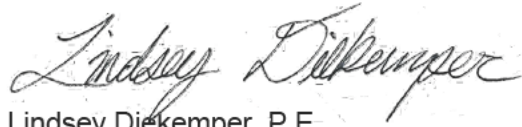
The Wally's site is approximately 18.94 acres with an approximately 54,000 square foot convenience store, 42 fuel dispenser islands, 287 standard parking spaces, 11 electric vehicle charging spaces, 8 accessible parking spaces (including 4 van accessible) and approximately 9.65 acres of unpaved area. The site will have electric and gas



services as well as an onsite connection to the City of Independence's sanitary sewer system and an offsite water main extension that will provide a 6-inch fire service as well as a 3-inch domestic water service to the site. The site will have onsite above ground detention as well as a hydrodynamic separator for water quality.

Thank you for this opportunity as we look forward to working with the City of Independence on this project. Please feel free to call me at [REDACTED] if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Lindsey Diekemper". The signature is fluid and cursive.

Lindsey Diekemper, P.E.

Application Type (check all that apply)

Land Use	Land Subdivision	Site Development	Use Permit	Other
☐ Rezoning ☐ PUD Rezoning	☐ Preliminary Plat ☐ Final Plat ☐ Minor Subdivision	☐ Final Site Plan ☐ Preliminary Dev Plan ☐ Final Dev Plan (PUD)	☒ Special Use ☐ Homebased Business ☐ Short-Term Rental	☐ Admin. Adjustment ☐ Variance ☐ Street Name Change ☐ Special Sign Permit

Project Information and Location

Wallys

Project Name

4023 S Noland Road

Project Address/Location

53,960

18.938

1

yes

Sq. Ft. of Building

Acreage

Number of Lots/Tracts

Stream Buffer (Yes or No)

C-2

C-2

retail/vacant

gasoline and fuel sales

Existing Zoning

Proposed Zoning

Existing Land Use

Proposed Land Use

Basic Application Requirements (See the Planning & Zoning Application Guide for additional requirements)

☒ Completed & Signed Application Form	☐ One 24" x 36" set of plans for Land Sub. & Site Dev.
☐ Application Fee	☒ One PDF copy of a plat map or site plan
☒ Cover Letter Describing Details of Project	☒ Legal Description of the property in question

Contact Information

Applicant

Lindsey Diekemper

Cole & Associates

Owner

Nate Hale

Wallys

Address

Address

Phone

Email

Phone

Email

Architect/Engineer/Surveyor/Other: _____

Architect/Engineer/Surveyor/Other: _____

Name

Company

Engineer & Surveyor same as Applicant

Name

Company

Address

Address

Phone

Email

Phone

Email

The applicant hereby agrees that the information provided above is accurate.

05/28/2025

Applicant's Signature

Date

Owner's Signature

Date

Property Owner Notification Letter

City of Independence, Missouri

Date: 8/07/2025

Case No. 25-200-07

Dear Property Owner:

This letter is to notify you that an application has been submitted for consideration by the Planning Commission and City Council. A full public hearing will be held by the Planning Commission and the City Council will consider new information on the dates and times below.

Proposed Case Type (Check One):

- ☐ Rezoning ☐ Rezoning/PUD ☒ Special Use Permit
☐ Preliminary Development Plan

Proposed project description: Wally's Travel Center with ~54000 SF of in-house prepared food, retail, and convenience/grocery items. 84 fueling positions and ~300 parking spaces. No 18-wheeler access to site except for deliveries.

Applicant: Cole & Associates, Inc.

Location of Property: 4023 S Noland Rd

Planning Commission Meeting Date: August 26th, 2025, at 6:00 p.m.

City Council Meeting Date: October 6, 2025, at 6:00 p.m.

Location of public hearings: City Council Chambers, City Hall
111 E Maple Ave, Independence, Missouri, 64050

All interested persons are invited to attend and will have an opportunity to be heard at the full public hearing (Planning Commission).

REZONINGS ONLY: You may file a protest petition with the Community Development Department. For more information or to get copies of a petition, please contact Planning staff at 816-325-7421.

 Lindsey Diekemper, PE
Cole & Associates, Inc.
Applicant (or Owner/Agent)

For more information, contact the Community Development Department at 816-325-7421.

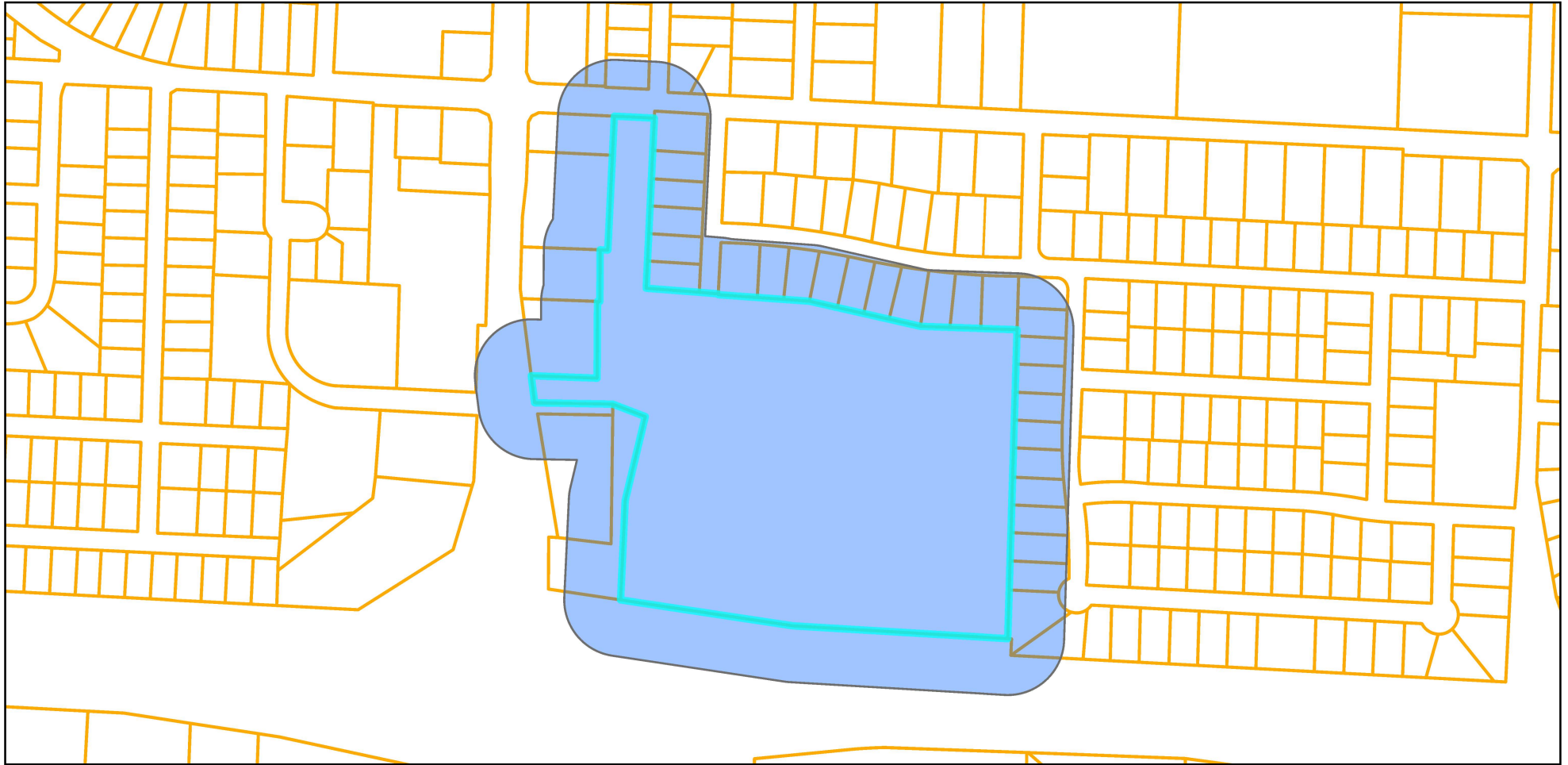
Property Address	Property Owner	Owner Address	City	State	ZIP Code
14104 E 39TH ST S	WARD DAVID J & KAREN M & TENTORI MARY JO	14106 E 39TH ST S	INDEPENDENCE	MO	64055
14201 E 39TH TER S	SANDERS CHERYL LEE	14201 E 39TH TER	INDEPENDENCE	MO	64055
14205 E 39TH TER S	CAREY KAITLYN B & DANIEL L	14205 E 39TH TER S	INDEPENDENCE	MO	64055
14207 E 39TH TER S	RODRIGUEZ KARLA	14207 E 39TH TER	INDEPENDENCE	MO	64055
14209 E 39TH TER S	BROWN ZACKARY	14209 E 39TH TER S	INDEPENDENCE	MO	64055
14211 E 39TH TER S	WILLIAMS ELDON A & BETTY L-TR	14211 E 39TH TER	INDEPENDENCE	MO	64055
14213 E 39TH TER S	GILPIN RACHEL	14213 E 39TH TER S	INDEPENDENCE	MO	64055
14301 E 39TH TER S	FISCHER KENT B	14301 E 39TH TER	INDEPENDENCE	MO	64005
14307 E 39TH TER S	WIEMANN RODNEY & LISA	100 DOCKSIDE DR	LAKE TAPAWINGO	MO	64015
14309 E 39TH TER S	ROYSTER ANTHONY	14309 E 39TH TER S	INDEPENDENCE	MO	64055
14311 E 39TH TER S	BOX DONALD E JR & PHYLLIS M	14311 E 39TH TER S	INDEPENDENCE	MO	64055
14329 E 39TH TER S	BOTSFORD SCOTTY F	14329 E 39TH TER S	INDEPENDENCE	MO	64055
14401 E 41ST ST S	EAKRIGHT REGINALD S & DIANA G	14401 E 41ST	INDEPENDENCE	MO	64055
3820 S CANTERBURY PL	THACH LA & JENNIFER BUI	708 NE DICK HOWSER CT	LEES SUMMIT	MO	64064
3823 S NOLAND RD	SCP 2006 C23 181 LLC	P.O BOX 1610	COCKEYSVILLE HUNT VA	MD	21030
3845 S CANTERBURY PL	ALPINE EQUITY LLC	PO BOX 241	INDEPENDENCE	MO	64051
3900 S DODGION AVE	WILSON DONNA L	3900 S DODGION AVE	INDEPENDENCE	MO	64055
3904 S DODGION AVE	TRUST DATED 08/12/2000	3904 S DODGION AVE	INDEPENDENCE	MO	64055
3908 S DODGION AVE	RODRIGUEZ RAMON O V & ARCOS LESLIE G	3908 S DODGION ST	INDEPENDENCE	MO	64055
3910 S DODGION AVE	CHILES STEVE A & GLORIA J	3910 S DODGION	INDEPENDENCE	MO	64055
3912 S DODGION AVE	KMS ENTERPRISES LLC	5225 E PIMA ST	TUCSON	AZ	85712
3914 S DODGION AVE	GRAVES TRACIE R	3914 S DODGION AVE	INDEPENDENCE	MO	64055
3915 S NOLAND RD	MONROE INDEPENDENCE LLC	3824 N ASHLAND AVE	CHICAGO	IL	60613
3918 S HOCKER AVE	KEALY LINDA J	433 E MASON ST	AZUSA	CA	91702
3920 S HOCKER AVE	RINCK JAMES PATRICK & BRITTANY LYNESE	3920 S HOCKER AVE	INDEPENDENCE	MO	64055
3939 S NOLAND RD	LAFREEDA DAWN M - TRUSTEE	5839 SEBASTIAN PL	SAN ANTONIO	TX	78249
4000 S HOCKER AVE	FRIEZE ANTHONY	4000 S HOCKER AVE	INDEPENDENCE	MO	64055
4002 S HOCKER AVE	PROSKE GAIL C	4002 S HOCKER	INDEPENDENCE	MO	64055
4004 S HOCKER AVE	MATTHEWS DONALD AND VIRGINIA L	4004 S HOCKER AVE	INDEPENDENCE	MO	64055
4006 S HOCKER AVE	BELL DENNIS A & RAI D	4006 S HOCKER ST	INDEPENDENCE	MO	64055
4008 S HOCKER AVE	CASEY JEFFREY & ANN	4005 S HOCKER	INDEPENDENCE	MO	64055
4010 S HOCKER AVE	FLORES MARK & JULIA	4010 S HOCKER	INDEPENDENCE	MO	64055
4011 S NOLAND RD	HARDEES2470 LLC	505 APPLEWOOD RD	WARRENSBIURG	MO	64093

4012 S HOCKER AVE	BAF ASSETS 5 LLC	5001 PLAZA ON THE LAKE STE 200	AUSTIN	TX	78746
4014 S HOCKER AVE	MONTES SEVERO	4014 S HOCKER AVE	INDEPENDENCE	MO	64055
4018 S HOCKER AVE	KEALY JONATHAN & KRISTIN	4018 S HOCKER AVE	INDEPENDENCE	MO	64055
4024 S NOLAND RD	QUIKTRIP CORPORATION	PO BOX 3475	TULSA	OK	74101
4029 S NOLAND RD	MAJZOUN FAMILY LP	PO BOX 2602	JOPLIN	MO	64803

Notification Area

4023 S Noland Rd

Case #25-200-07



Legend

-  Notification Area
-  Parcels



0 250 500 1,000 US Feet

Prepared For: Planning Commission
Meeting Date: August 26, 2025

Property Owner Notification Affidavit

STATE OF MISSOURI

COUNTY OF JACKSON

Case No. 25-200-07

I, Lindsey Diekemper, of lawful age being first duly sworn upon oath, state:

That I am the (agent, owner, attorney) for the property for which the application was filed and did, not later than fifteen (15) days prior to the date of the public hearing scheduled before the Planning Commission, mail notices to all persons owning property within 185 feet of the subject property. **The list of property owners to whom notice has been mailed is attached.**

These notices were mailed on the 7th day of August, 2025.

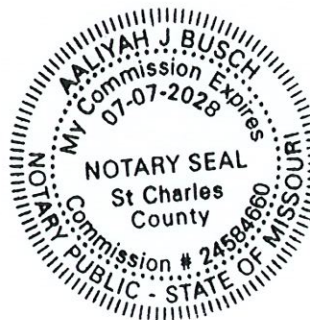
Lindsey Diekemper

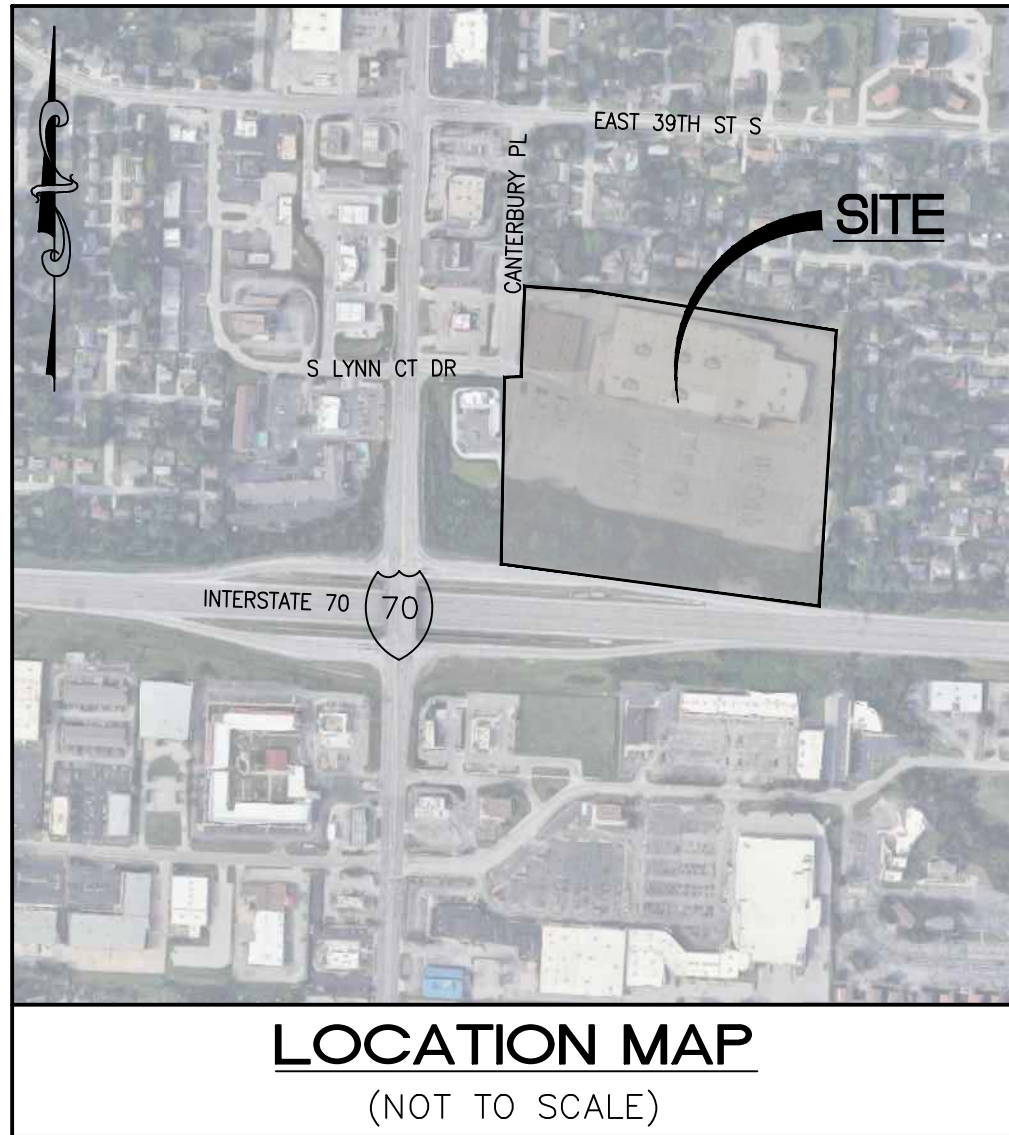
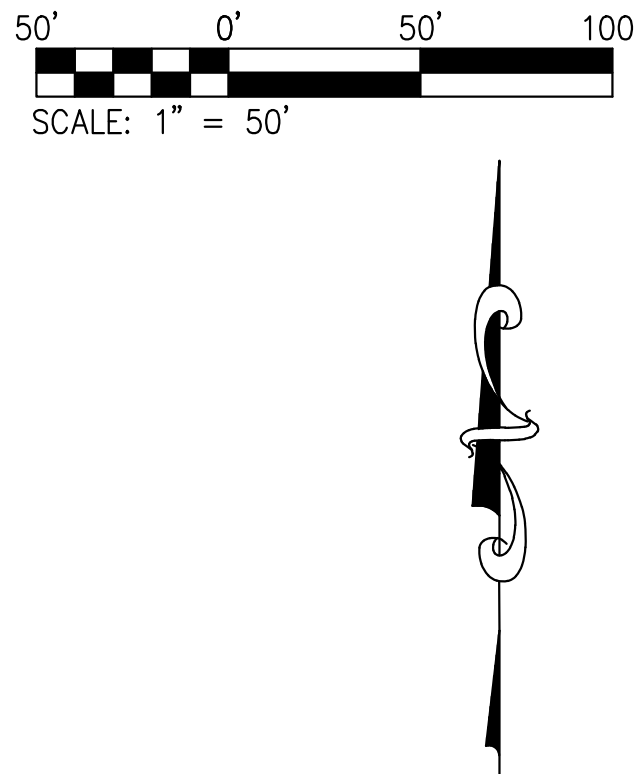
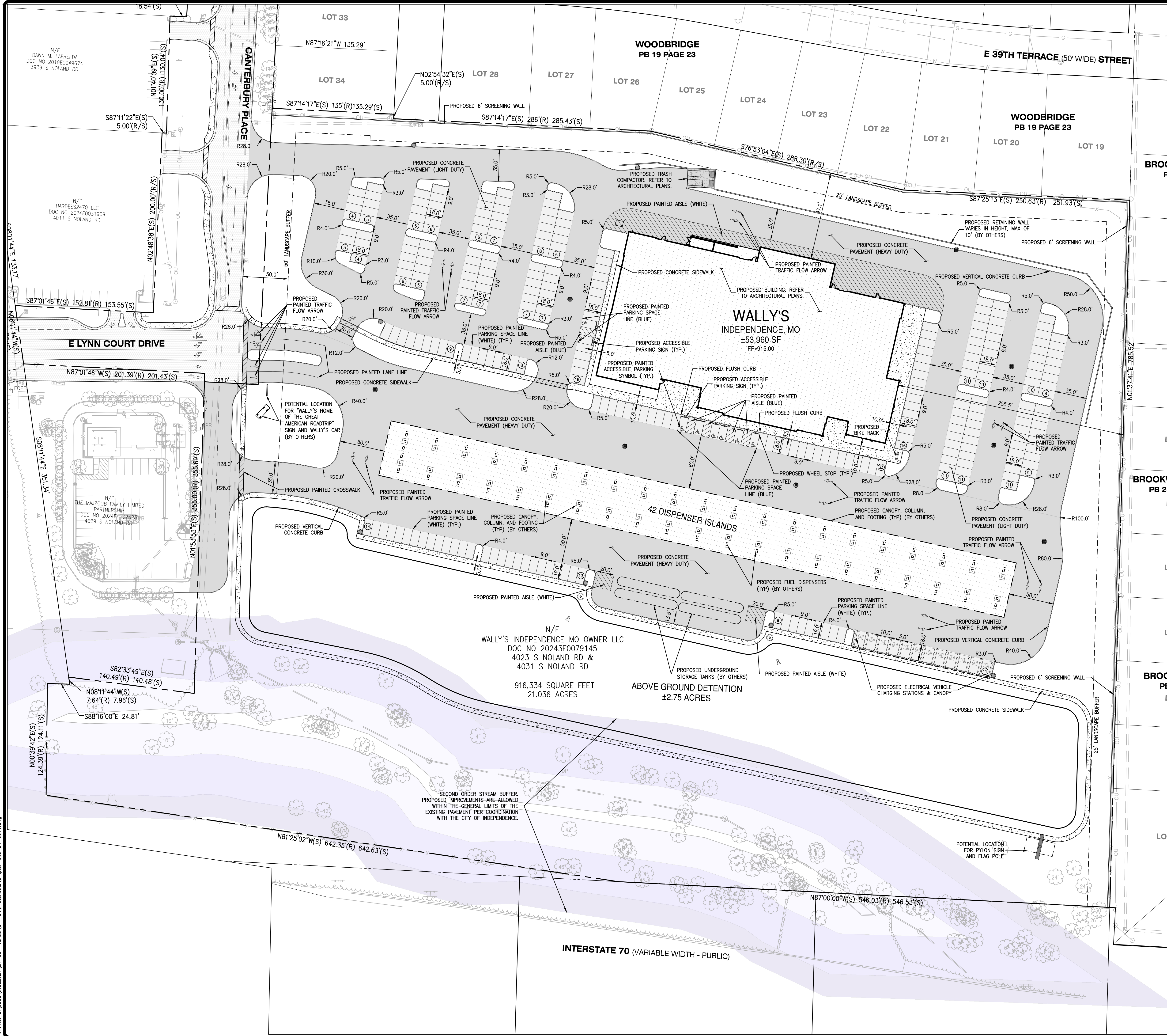
Signature of Agent, Owner or Attorney

Subscribed and sworn to before me this 7th day of august, 2025.

Aaliyah J. Busch
Notary Public

07/07/2028
Commission Expiration Date





SITE SUMMARY	
EXISTING BUILDING AREA (TBR)	192,857 S.F.
PROPOSED BUILDING AREA (1 STORY)	53,960 SF - 6.5%
PROPOSED USE	GAS & FUEL SALES
PROPOSED PAVED AREA	350,738 SF - 42.5%
UNPAVED AREA	420,263 SF - 51%
LAND AREA	824,961 SF, 18.9 AC
FRONT, SIDE, & REAR EXTERIOR SETBACK	15'
INTERIOR SIDE SETBACK	5'
INTERIOR REAR SETBACK	20'

NOTE: LAND AREA AND SITE PERCENTAGES ARE BASED ON THE PROPOSED WALLY'S LOT LIMITS PER THE PROPOSED SUBDIVISION EXHIBIT. REFER TO THE EXHIBIT FOR THE LEGAL DESCRIPTION.

WALLY'S PARKING CALCULATIONS

PARKING REQUIREMENTS (STANDARD)	
USE CATEGORY - GAS & FUEL SALE	1 PER PUMP + REQUIRED FOR RETAIL SALES
USE CATEGORY - RETAIL SALES	4 SPACES PER 1,000 S.F.
NUMBER OF PUMPS	84 PUMPS (42 PUMP ISLANDS)
GROSS FLOOR AREA	53,960 S.F.
CALCULATION	(4 SPACE/1,000 S.F.) * (53,960 S.F.) + 84 = 300 SPACES
PARKING REQUIREMENTS (ACCESSIBLE)	
301-400 STANDARD SPACES	8 ACCESSIBLE SPACES
VAN ACCESSIBLE REQUIREMENT	1 VAN ACCESSIBLE SPACE FOR EVERY 6 ACCESSIBLE SPACES
PARKING DATA	
SPACES REQUIRED (TOTAL)	300 SPACES
SPACES PROVIDED (STANDARD)	287 SPACES
SPACES PROVIDED (ELECTRICAL)	11
SPACES PROVIDED (ACCESSIBLE)	8 SPACES (4 VAN ACCESSIBLE)
SPACES PROVIDED (TOTAL)	306 SPACES
PARKING REQUIREMENTS AND DATA (BICYCLE)	
FIVE PERCENT OF REQUIRED PARKING SPACES PROVIDED	0.05 * 300 = 15 SPACES REQUIRED 16 SPACES

DEVELOPER/OWNER:
WALLY'S INDEPENDENCE, MO OWNER LLC
950 ASSEMBLY PARKWAY
FENTON, MO 63026
PHONE # (312) 730-0866

THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON HAS ASSUMED RESPONSIBILITY FOR THE PREPARATION OF THIS PLAN. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROFESSIONAL STANDARDS AND ETHICS OF THE PROFESSION OF LAND SURVEYING. THE PLAN IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS PREPARED.

DATE: NO REVISION DESCRIPTION

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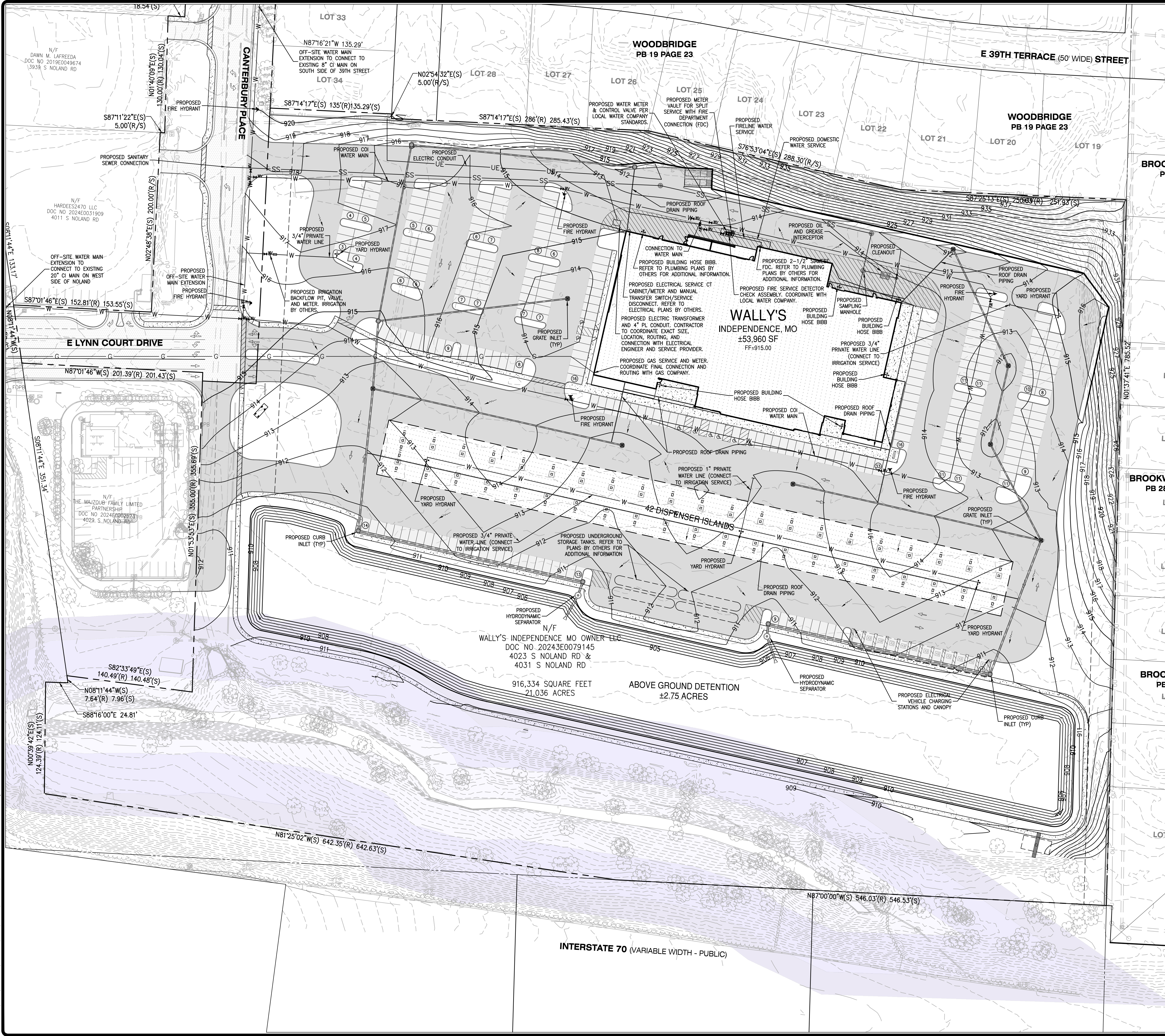
WALLY'S
4031 S NOLAND ROAD
INDEPENDENCE, MO 64055

SITE PLAN

+ ST. CHARLES
1320 S. Fifth Street
Suite 307
St. Charles, MO 63303
636.976.7538 fax
www.colet.com

COLE
CIVIL ENGINEERING / SURVEYING / PLANNING / LANDSCAPE ARCHITECTURE
7/65 ADA TRANSITION PLANNING
Registered Professional Engineer #10193871
State of Missouri, License # 10193871
State of Missouri, License # 10193871

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DRAWN BY:
MRS
CHECKED BY:
ALA
DRAWING SCALE:
AS SHOWN
DATE:
08/05/2025
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Sheet Number:
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STORM WATER MANAGEMENT

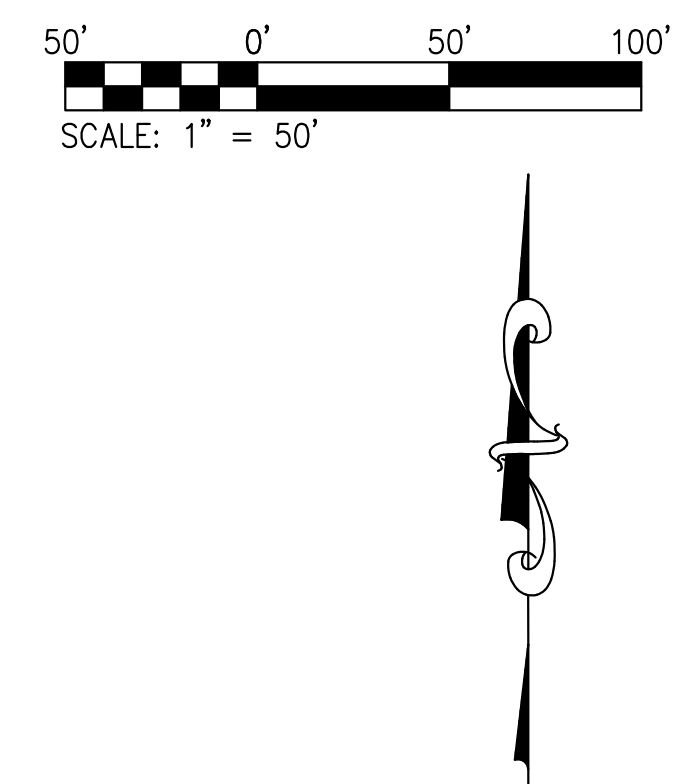
ABOVE GROUND DETENTION WILL BE PROVIDED PER THE BELOW PEAK DISCHARGE RELEASE RATES. THESE RELEASE RATES WERE ADOPTED BY THE CITY OF INDEPENDENCE FROM THE 2011 APWA SECTION 5600 FOR STORM DRAINAGE SYSTEMS & FACILITIES REQUIREMENTS. IT IS ESTIMATED THAT 14.5 ACRES OF THE WALLY'S SITE CAN BE COLLECTED FOR DETENTION WITH THE REMAINING ACREAGE BEING OFF-SITE OR DOWNSTREAM OF THE PROPOSED BASIN, WITHIN THE STREAM BUFFER.

PER THE BELOW CALCULATIONS, IT IS ESTIMATED THAT WALLY'S WILL BE ALLOWED A 100 YEAR RELEASE RATE OF 43.5 CFS. THIS WILL REQUIRE APPROXIMATELY 295,300 CUBIC FEET OF STORAGE WHICH CAN BE PROVIDED WITHIN THE 2.75 ACRES OF ALLOTTED DETENTION AREA.

- 50% (2YR) STORM PEAK RATE $\leq$ 0.5 CFS PER SITE ACRE
0.5 CFS X 14.5 ACRES = 7.25 CFS
- 10% (10YR) STORM PEAK RATE $\leq$ 2.0 CFS PER SITE ACRE
2.0 CFS X 14.5 ACRES = 29.0 CFS
- 1% (100YR) STORM PEAK RATE $\leq$ 3.0 CFS PER SITE ACRE
3.0 CFS X 14.5 ACRES = 43.5 CFS

THE CITY OF INDEPENDENCE HAS ADOPTED THE APWA MARC MANUAL FOR STORM WATER QUALITY. THE MARC MANUAL USES THE "LEVEL OF SERVICE" METHOD FOR DETERMINING THE AMOUNT OF TREATMENT REQUIRED. GIVEN THE EXISTING SITE CONDITIONS BEING MOSTLY IMPERVIOUS AREA, THE "LEVEL OF SERVICE" METHOD DOES NOT APPLY. HOWEVER, WATER QUALITY TREATMENT WILL BE PROVIDED IN THE FORM OF HYDRODYNAMIC SEPARATORS TO ADDRESS OIL & GREASE, SUSPENDED SOLIDS, TRASH ETC PRIOR TO DISCHARGING IN THE PROPOSED DETENTION BASIN.

FOR ADDITIONAL INFORMATION, PLEASE REFER TO THE PRELIMINARY STORM WATER ANALYSIS DOCUMENT. A FULL STORM WATER MANAGEMENT REPORT WILL ALSO BE PROVIDED AS PART OF THE FINAL DESIGN FOR THIS PROJECT.



DEVELOPER/OWNER:
WALLY'S INDEPENDENCE, MO OWNER LLC
950 ASSEMBLY PARKWAY
FENTON, MO 63026
PHONE # (312) 730-0866

THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON HAS ASSUMED RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT. ANY CHANGES TO THE DESIGN SHALL BE MADE BY THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON. NO OTHER DOCUMENTS OR INSTRUMENTS NOT SPECIFICALLY REFERENCED IN THIS DOCUMENT SHALL BE USED IN CONNECTION WITH THIS PROJECT. THE PROFESSIONAL'S DESIGN SHALL BE USED IN ACCORDANCE WITH THE PROVISIONS OF THE MISSOURI ENGINEERING ACT.

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WALLY'S
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INDEPENDENCE, MO 64055

PRELIM GRADING & UTILITY PLAN

ST. CHARLES
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7/65 ADA TRANSITION PLANNING
Professional Engineer License #10193871
Professional Engineer License #10233 and State of Missouri
Professional Engineer License #10233 and State of Missouri

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DRAWN BY:
MRS

CHECKED BY:
ALA

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AS SHOWN

DATE:
08/05/2025

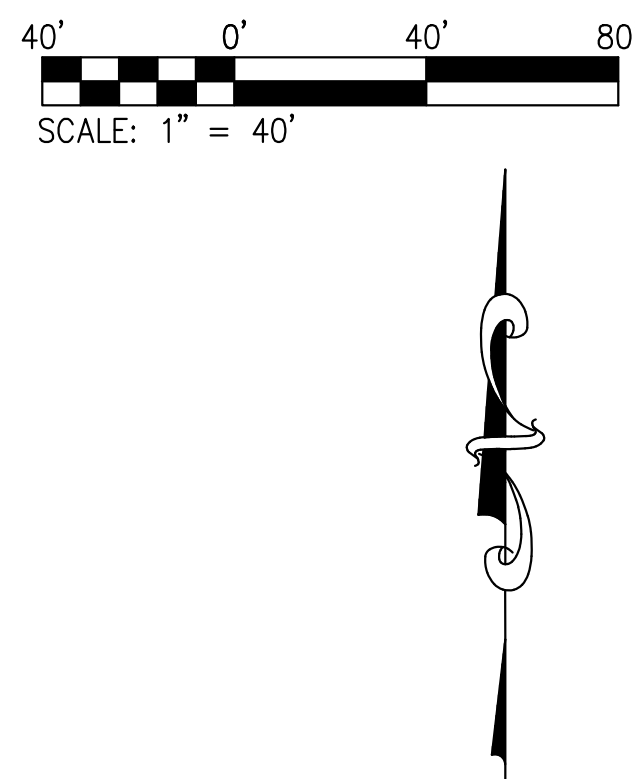
Job Number:
24-0011

Sheet Number:
C2.0

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PROPOSED OFF-SITE LIMITS OF IMPROVEMENTS.
EXACT LIMITS OF PAVEMENT REMOVAL AND REPLACEMENT TO
BE DETERMINED WITH FINAL DESIGN. SCHEMATIC DESIGN HAS
BEEN PROVIDED FOR REFERENCE ONLY. ADDITIONAL I-70
ON/OFF RAMP IMPROVEMENTS ARE FORTHCOMING WITH FINAL
DESIGN PENDING TRAFFIC IMPACT STUDY.



LEVELER/OWNER
WALL'S INDEPENDENCE, MO OWNER LLC
950 ASSEMBLY PARKWAY
FENTON, MO 63026
PHONE # (312) 730-0986

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4023 S. NOLAND ROAD
INDEPENDENCE, MO 64055

BROADWAY SCHEMATIC IMPROVEMENTS

+ ST. CHARLES

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/ Registered Engineering Firm - F-10233 Land Survey Company Registration #101987

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Sheet Number C3.0	



GENERAL NOTE:

1. SEE SHEET L1.5 FOR LANDSCAPE NOTES, CALCULATIONS AND FULL PLANT SCHEDULE WITH QUANTITIES.

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DATE
08/05/2025

Job Number
24-0011

Sheet Number
L1.0

20' 0' 20' 40'
SCALE: 1" = 20'

PLANT MATERIAL SCHEDULE

CANOPY TREES			
SYMB.	ABBV.	BOTANICAL NAME	COMMON NAME
	UA	Ulmus americana 'Valley Forge'	American Elm 'Valley Forge'
	GT	Gleditsia triacanthos f. inermis 'Skycole' SKYLINE	Thornless Honeylocust
	AF	Acer xfreemanii Autumn Blaze	Autumn Blaze Maple
	TT	Liriodendron tulipifera	Tuliptree
	QS	Quercus shumardii	Shumard Oak
EVERGREEN TREES			
SYMB.	ABBV.	BOTANICAL NAME	COMMON NAME
	IO	Ilex opaca	American Holly
	PO	Pinus strobus	White Pine
	PP	Picea pungens	Blue Spruce
ORNAMENTAL TREES			
SYMB.	ABBV.	BOTANICAL NAME	COMMON NAME
	CC	Cercis canadensis	Redbud
	AA	Amelanchier arborea	Downy Serviceberry
	CO	Cotinus obovatus	American Smoke Tree
SHRUBS / GRASSES			
SYMB.	ABBV.	BOTANICAL NAME	COMMON NAME
	PD	Physocarpus opulifolius 'Diabolo'	Ninebark
	RA	Rhus aromatica 'Grow-Low'	Fragrant sumac
	CE	Ceanothus americanus	New Jersey Tea
	BG	Buxus x 'Green Velvet'	Green Velvet Boxwood
	JP	Juniperus x pfitzeriana 'Sea Green'	Chinese juniper
	JC	Juniperus chinensis 'Spartan'	Chinese juniper
	SS	Schizachyrium scoparium	Little Bluestem
	TT		Turf Type Tall Fescue

GENERAL NOTE:

1. SEE SHEET L1.5 FOR LANDSCAPE NOTES, CALCULATIONS AND FULL PLANT SCHEDULE WITH QUANTITIES.

LANDSCAPE ENLARGEMENT

SCALE: 1"=20'

REF. DWG. L1.0

MATCH LINE SHEET L1.4

MATCH LINE SHEET L1.2

DEVELOPER/OWNER:
WALLY'S INDEPENDENCE, MO OWNER LLC
950 ASSEMBLY PARKWAY
FENTON, MO 63026
PHONE # (312) 730-0866

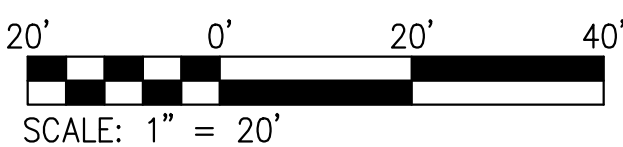
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Professional Engineer License # 00235 and State of Kansas
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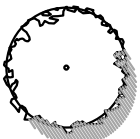
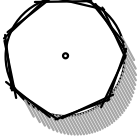
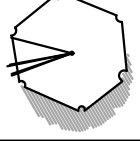
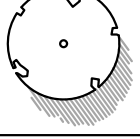
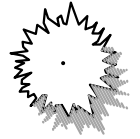
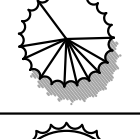
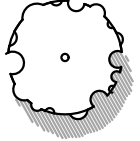
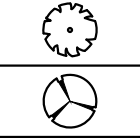
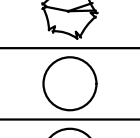
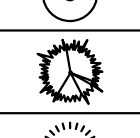
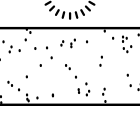
DEVELOPER/OWNER:
WALLY'S INDEPENDENCE, MO OWNER LLC

LANDSCAPE ENLARGEMENT

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	<i>Sheet Number</i>
	L1.4

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USER: Lindsey Dikemper TAB: L1.5
DATE: August 5, 2025 -- 8:48:57 AM
DRAWING: S:\JOBS\Job#2024\24-0011\CADD\G--Plan\PlotSheets\O_PLANT_LAND_24-0011.dwg

PLANT MATERIAL SCHEDULE								
CANOPY TREES								
SYMB.	ABBV.	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	DET.	SPACING	COMMENTS
	UA	23	Ulmus americana 'Valley Forge'	American Elm 'Valley Forge'	2" Cal. Min.	B&B	AS SHOWN	MALE CULTIVARS ONLY
	GT	19	Gleditsia triacanthos f. inermis 'Skycole' SKYLINE	Thornless Honeylocust	2" Cal. Min.	B&B	AS SHOWN	
	AF	37	Acer xfreemanii Autumn Blaze	Autumn Blaze Maple	2" Cal. Min.	B&B	AS SHOWN	
	TT	8	Liriodendron tulipifera	Tuliptree	2" Cal. Min.	B&B	AS SHOWN	
	QS	20	Quercus shumardii	Shumard Oak	2" Cal. Min.	B&B	AS SHOWN	
EVERGREEN TREES								
SYMB.	ABBV.	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	DET.	SPACING	COMMENTS
	IO	25	Ilex opaca	American Holly	7" HT. Min.	B&B	AS SHOWN	
	PO	12	Pinus strobus	White Pine	7" HT. Min.	B&B	AS SHOWN	
	PP	18	Picea pungens	Blue Spruce	7" HT. Min.	B&B	AS SHOWN	
ORNAMENTAL TREES								
SYMB.	ABBV.	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	DET.	SPACING	COMMENTS
	CC	24	Cercis canadensis	Redbud	2" Cal. Min.	B&B	AS SHOWN	
	AA	23	Amelanchier arborea	Downy Serviceberry	2" Cal. Min.	B&B	AS SHOWN	
	CO	10	Cotinus obovatus	American Smoke Tree	2" Cal. Min.	B&B	AS SHOWN	
SHRUBS / GRASSES								
SYMB.	ABBV.	QTY.	BOTANICAL NAME	COMMON NAME	HEIGHT	DET.	REMARKS	COMMENTS
	PD	61	Physocarpus opulifolius 'Diabolo'	Ninebark	18"-24" Min.	Cont.	AS SHOWN	
	RA	22	Rhus aromatica 'Grow-Low'	Fragrant sumac	18"-24" Min.	Cont.	AS SHOWN	
	CE	61	Ceanothus americanus	New Jersey Tea	18"-24" Min.	Cont.	AS SHOWN	
	BG	59	Buxus x 'Green Velvet'	Green Velvet Boxwood	18"-24" Min.	Cont.	AS SHOWN	
	JP	107	Juniperus xpfizeriana 'Sea Green'	Chinese Juniper	18"-24" Min.	Cont.	AS SHOWN	
	JC	15	Juniperus chinensis 'Spartanmint'	Chinese Juniper	4" HT. MIN.	Cont.	AS SHOWN	
	SS	60	Schizachyrium scoparium	Little Bluestem	2 GAL.	Cont.	AS SHOWN	
	TT	T.B.D.		Turf Type Tall Fescue				

* ALL AREAS NOT PAVED AND OUTSIDE OF PLANT BEDS SHALL BE TURF TYPE TALL FESCUE GRASS UNLESS OTHERWISE NOTED. CONTRACTOR TO DETERMINE AREAS OF SOD AND AREAS OF SEED. CITY REGULATIONS APPLY.

LANDSCAPE AND TREE REQUIREMENTS			
CODE SEC. 14-503-02-D (1) - STREET TREE PLANTING, NON-RESIDENTIAL DISTRICTS			
REQUIREMENT	AREA / MEASUREMENT	REQ'D	PROV'D
A MINIMUM OF ONE (1) STREET TREE IS REQUIRED FOR EVERY 40 FEET OF PUBLIC OR PRIVATE STREET FRONTAGE	+/- 300 L.F. OF STREET FRONTAGE ALONG CANTERBURY PLACE 300/40 = 7.5	8 TREES	8 TREES
CODE SEC. 14-503-05-C - PARKING LOT PERIMETER LANDSCAPING, PLANT MATERIAL			
REQUIREMENT	AREA / MEASUREMENT	REQ'D	PROV'D
AT LEAST ONE TREE AND THREE SHRUBS MUST BE INSTALLED FOR EVERY 40 FEET OF PARKING LOT PERIMETER *** 14-403-02-B ALONG PUBLIC AND OR PRIVATE STREETS - GAS STATION LANDSCAPE REQUIRES AN ADDITIONAL 25% OF THE PERIMETER PLANTINGS	SOUTH PERIMETER +/- 920 L.F. 920/40 = 23 23 x 3 = 69 WEST PERIMETER *** ALONG CANTERBURY PLACE +/- 390 L.F. 390/40 = 9.75 + 25% = 12.2 9.75 x 3 = 29.25 + 25% = 36.5 EAST PERIMETER +/- 455 L.F. 455/40 = 11.3 11.3 x 3 = 33.9	23 TREES 69 SHRUBS 13 TREES 37 SHRUBS ***INCLUDES THE 25% INCREASE 12 TREES 34 SHRUBS	23 TREES 69 SHRUBS 13 TREES (INCLUDES 8 TREES FROM STREET FRONTAGE REQUIREMENT) 37 SHRUBS ***INCLUDES THE 25% INCREASE 12 TREES 34 SHRUBS
CODE SEC. 14-503-06-C - PARKING LOT INTERIOR LANDSCAPING, LANDSCAPE ISLANDS PLANT MATERIAL			
REQUIREMENT	AREA / MEASUREMENT	REQ'D	PROV'D
AT LEAST ONE (1) TREE AND THREE (3) SHRUBS MUST BE INSTALLED FOR EVERY 20 PARKING SPACES. EACH LANDSCAPE ISLAND WITHIN THE INTERIOR OF A PARKING LOT MUST INCLUDE AT LEAST ONE (1) CANOPY OR ORNAMENTAL TREE.	306 PARKING SPACES 306/20=15.3 15.3x3=45.9 15.3x3=45.9	16 TREES 46 SHRUBS 1 TREE PER ISLAND	16 TREES 46 SHRUBS (ALL PROPOSED SHRUBS LOCATED IN ENTRY ISLAND) 1 TREE PER ISLAND AS SHOWN
CODE SEC. 14-503-07- BUFFERYARDS			
THE REQUIRED BUFFER AREA MUST HAVE A DEPTH OF 15 FEET MEASURED FROM THE LOT LINE INWARDS ALONG SIDE AND REAR (INTERIOR) YARDS, WHEREVER ADVERSE IMPACTS EXIST. A SCREEN MAY CONSIST OF A WALL, BERM, FENCE, OR PLANT MATERIAL, OR ANY COMBINATION THEREOF. AN OPAQUE FENCE SCREEN MUST BE AT LEAST SIX FEET IN HEIGHT AND A MAXIMUM HEIGHT OF EIGHT FEET AND MUST BE CONSTRUCTED OF APPROVED FENCING MATERIALS. THE FENCE MUST FORM A COMPLETE (100 PERCENT) OPAQUE SCREEN. FENCE REGULATIONS ARE LOCATED IN SECTION 14-400-02. WHEN HIGH IMPACT SCREENING IS REQUIRED, LOW IMPACT LANDSCAPING REQUIREMENTS MUST BE INCLUDED WITH THE SOLID FENCE.OPAQUE FENCES MAY NOT EXCEED 200 FEET IN LENGTH WITHOUT BEING BROKEN BY A LANDSCAPE AREA TO SOFTEN THE LINEAR EFFECT OF THE FENCE. LONG FENCES MAY BE CONSTRUCTED IN A SERPENTINE MANNER WITH INTEGRATED LANDSCAPING. FENCES SHOULD ALSO BE INTEGRATED INTO PHYSICAL TOPOGRAPHICAL FEATURES WHENEVER POSSIBLE.			
REQUIREMENT	AREA / MEASUREMENT	REQ'D	PROV'D
HIGH IMPACT SCREEN REQUIRED ALONG THE NORTH AND EAST BOUNDARY LINES WHICH INCLUDE A FENCE AND LOW IMPACT LANDSCAPE SCREEN. LOW IMPACT SCREEN "A" REQUIRES CANOPY TREE = 1 PER 500 S.F. ORNAMENTAL TREE = 1 PER 750 S.F. EVERGREEN TREE = 1 PER 500 S.F. SHRUBS = 1 PER 500 S.F.	NORTH BOUNDARY LINE +/- 14,489.3 S.F. 14,489.3/500 = 28.9 14,489.3/750 = 19.3 14,489.3/500 = 28.9 14,489.3/500 = 28.9 EAST BOUNDARY LINE +/- 11,558.8 S.F. 11,558.8/500 = 23.1 11,558.8/750 = 15.4 11,558.8/500 = 23.1 11,558.8/500 = 23.1	FENCE 29 CANOPY TREES 20 ORNAMENTAL TREES 29 EVERGREEN TREES 29 SHRUBS FENCE 24 CANOPY TREES 16 ORNAMENTAL TREES 24 EVERGREEN TREES 24 SHRUBS	FENCE 29 CANOPY TREES 20 ORNAMENTAL TREES 29 EVERGREEN TREES 29 SHRUBS FENCE 24 CANOPY TREES 16 ORNAMENTAL TREES 24 EVERGREEN TREES 24 SHRUBS
CODE SEC. 14-503-04 (b) - BUILDING PERIMETER LANDSCAPING			
AT LEAST 20 PERCENT OF THE AREA WITHIN 20 FEET OF THE PERIMETER OF ALL BUILDINGS SHALL BE LANDSCAPED OPEN SPACE. SUCH LANDSCAPING SHALL BE LOCATED ALONG THE SIDE(S) OF A BUILDING FACING A PUBLIC STREET AND IN THE VICINITY OF THE PUBLIC ENTRANCES TO THE BUILDING. THE AREA 20' OUTSIDE THE PERIMETER OF THE BUILDING ALONG THE SIDE(S) FACING A PUBLIC STREET AND IN THE VICINITY OF THE PUBLIC ENTRANCES OF THE BUILDING IS 11,662 S.F. 0.2*11,662 S.F. = 2,333 S.F. LA REQUIRED 2,381 S.F. OF LA PROVIDED ALONG THE SOUTH AND WEST SIDE OF THE AREA WITHIN 20' OF THE BUILDING.			

LANDSCAPE NOTES:

- LANDSCAPE CONTRACTOR TO VERIFY LOCATION OF UNDERGROUND UTILITIES BEFORE BEGINNING WORK.
- ALL LANDSCAPE SHALL COMPLY WITH THE CURRENT EDITION OF ANSI Z 60.1 "AMERICAN STANDARD FOR NURSERY STOCK."
- ALL PLANTS SHALL MEET THE REQUIREMENTS OF THE STATE AND FEDERAL LAW WITH RESPECT TO DISEASE AND INSECT INFESTATION.
- MULCH AREAS WITH TRIPLE GROUND HARDWOOD MULCH 3" MIN. DEPTH UNLESS OTHERWISE NOTED.
- ALL LANDSCAPE SUBSTITUTIONS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT.
- FORMAL LINES AND GROUPINGS OF A SPECIES OF TREE, SHRUB, OR GROUNDCOVER SHALL BE MATCHED FOR SIZE, FORM, AND COLOR.
- ALL BACKFILL IN PLANTING BEDS AND TREE PITS SHALL BE BACKFILLED WITH LOCAL COMPOSTING GARDEN MIX OR APPROVED EQUAL PLANTING SOIL.
- ALL TREES OUTSIDE OF PLANT BEDS SHALL BE PLANTED WITH A MULCH RING. OBTAIN APPROVAL FROM OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT FOR ANY TREES THAT WILL NOT BE MULCHED FOR EXCESSIVE MOISTURE REASONS.
- ALL LANDSCAPING SHALL BE INSTALLED AS SHOWN ON THE APPROVED PLAN.
- AT PLANTING, TREE TRUNKS MUST BE STRAIGHT WITH MINIMAL DOGLEGs.
- ALL WIRE BASKETS, BURLAP WRAPPINGS, ROPE, TWINE OR ANY SIMILAR SHIPPING MATERIALS SHALL BE REMOVED BEFORE PLANTING.
- A SHADE CUT EDGE SHALL BE CREATED AT ALL LOCATIONS WHERE PLANTING BEDS ARE ADJACENT TO GRASS AREAS UNLESS OTHERWISE NOTED.
- SEE CIVIL PLANS FOR TYPE AND LOCATION OF EROSION CONTROL MATERIALS.
- DO NOT DISTURB EXISTING UTILITIES WITHIN WORK AREA. SILT FENCE AND PLANTINGS SHALL AVOID ANY EXISTING UTILITIES.
- THE CONTRACTOR SHALL FOLLOW THE LANDSCAPE PLANS. ANY SUBSTITUTION OR ALTERATION SHALL NOT BE ALLOWED WITHOUT APPROVAL OF THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT. OVERALL PLANT QUANTITY AND QUALITY SHALL BE CONSISTENT WITH THE PLANS.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES. WRITTEN QUANTITIES TAKES PRECEDENCE OVER GRAPHIC QUANTITIES. NOTIFY OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT OF DISCREPANCIES.
- THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT RESERVES THE RIGHT TO INSPECT AND TAG ALL PLANT MATERIAL PRIOR TO SHIPPING TO THE SITE. IN ALL CASES, THE LANDSCAPE ARCHITECT MAY REJECT PLANT MATERIAL AT THE SITE IF MATERIAL IS DAMAGED, DISEASED, OR DECLINING IN HEALTH AT THE TIME OF ONSITE INSPECTIONS OR IF THE PLANT MATERIAL DOES NOT MEET THE MINIMUM SPECIFIED STANDARD IDENTIFIED ON THE PLANS AND IN THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT FOR INSPECTION AND APPROVAL OF ALL MATERIALS AND PRODUCTS PRIOR TO INSTALLATION.
- THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT MAY ELECT TO UPSIZE PLANT MATERIAL AT THEIR DISCRETION BASED ON SELECTION, AVAILABILITY, OR TO ENHANCE SPECIFIC AREAS OF THE PROJECT. THE CONTRACTOR SHALL VERIFY PLANT MATERIAL SIZES WITH OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT PRIOR TO PURCHASING, SHIPPING OR STOCKING OF PLANT MATERIALS. SUBMIT CHANGE ORDER REQUEST TO OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT FOR APPROVAL IF ADDITIONAL COST IS REQUESTED BY THE CONTRACTOR PRIOR TO INSTALLATION. RE-STOCKING CHARGES WILL NOT BE APPROVED IF THE CONTRACTOR FAILS TO SUBMIT A REQUEST FOR MATERIAL CHANGES.
- THE CONTRACTOR SHALL WARRANTY ALL CONTRACTED WORK AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION HAS BEEN ISSUED BY THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT FOR THE ENTIRE PROJECT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS OR SPECIFICATIONS.
- THE DEVELOPER, HIS SUCCESSORS AND ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE AND REPLACEMENT OF ALL LANDSCAPING MATERIALS SHOWN OR INDICATED ON THE APPROVED LANDSCAPE PLAN ON FILE WITH THE PLANNING DEPARTMENT. ALL LANDSCAPING WILL BE INSTALLED AS DELINEATED ON THE PLAN, PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.
- PRIOR TO INSTALLATION OF PLANT MATERIALS, AREAS THAT HAVE BEEN COMPACTED OR DISTURBED BY CONSTRUCTION ACTIVITY SHALL BE THOROUGHLY LOOSENEED TO A DEPTH OF 8" - 12" AND AMENDED.
- ALL LANDSCAPED AREAS ARE TO HAVE SOIL PREPARATION, (MINIMUM RATE OF 3 CU. YDS. OF ORGANIC MATTER PER 1000 S.F.). TREES SHALL NOT BE LOCATED IN DRAINAGE SWALES, DRAINAGE AREAS, OR UTILITY EASEMENTS. CONTACT OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT FOR RELOCATION OF PLANTS IN QUESTIONABLE AREAS PRIOR TO INSTALLATION.
- ALL TREES ARE TO BE STAKED AND GUYED FOR A PERIOD OF 1 YEAR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING STAKES AT THE END OF 1 YEAR FROM ACCEPTANCE OF LANDSCAPE INSTALLATION BY THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT. OBTAIN APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO REMOVAL.
- PLACE PLANT MATERIAL IN SHRUB BED SO THAT ONCE PLANTS GROW TO FULL SIZE THEY ARE FULLY CONTAINED WITHIN THE SHRUB BED AREA AND DO NOT HANG OVER THE EDGER LINE.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING POSITIVE DRAINAGE EXISTS IN ALL LANDSCAPE AREAS. SURFACE DRAINAGE ON LANDSCAPE AREAS SHALL NOT FLOW TOWARD STRUCTURES AND FOUNDATIONS. MAINTAIN SLOPE AWAY FROM FOUNDATIONS PER THE GEOTECHNICAL REPORT RECOMMENDATIONS. ALL LANDSCAPE AREAS BETWEEN WALKS AND CURBS SHALL DRAIN FREELY TO THE CURB UNLESS OTHERWISE IDENTIFIED ON THE GRADING PLAN. IN NO CASE SHALL THE GRADE, TURF THATCH, OR OTHER LANDSCAPE MATERIALS DAM WATER AGAINST WALKS. MINIMUM SLOPES ON LANDSCAPE AREAS SHALL BE 2%; MAXIMUM SLOPE SHALL BE 25% UNLESS SPECIFICALLY IDENTIFIED ON THE PLANS OR APPROVED BY THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT.
- SHRUB, GROUNDCOVER AND PERENNIAL BEDS ARE TO BE CONTAINED BY A SHADE CUT EDGE UNLESS OTHERWISE NOTED. EDGER IS NOT REQUIRED WHEN ADJACENT TO CURBS, WALLS, WALKS OR SOLID FENCES WITHIN 3" OF PRE-MULCHED FINAL GRADE. EDGER SHALL NOT BE REQUIRED TO SEPARATE MULCH TYPES UNLESS SPECIFIED ON THE PLANS.
- EXISTING TURF AREAS THAT ARE DISTURBED DURING CONSTRUCTION, ESTABLISHMENT AND THE MAINTENANCE PERIOD SHALL BE RESTORED WITH NEW SOD TO MATCH EXISTING TURF SPECIES.
- WHEN COMPLETE, ALL GRADES SHALL BE WITHIN +/- 1/8" OF FINISHED GRADES AS SHOWN ON THE PLANS.THESE PLANS ARE NOT INTENDED FOR CONSTRUCTION OR PERMITTING UNLESS STATED IN THE TITLE BLOCK.
- DRAWINGS ARE INTENDED TO BE PRINTED ON 24" X 36" PAPER. PRINTING THESE DRAWINGS AT A DIFFERENT SIZE WILL IMPACT THE SCALE. VERIFY THE GRAPHIC SCALE BEFORE REFERENCING ANY MEASUREMENTS ON THESE SHEETS. THE RECIPIENT OF THESE DRAWINGS SHALL BE RESPONSIBLE FOR ANY ERRORS RESULTING FROM INCORRECT PRINTING, COPYING, OR ANY OTHER CHANGES THAT ALTER THE SCALE OF THE DRAWINGS.
- VERIFY ALL PLAN DIMENSIONS PRIOR TO START OF CONSTRUCTION. NOTIFY THE OWNER'S REPRESENTATIVE TO ADDRESS ANY QUESTIONS OR CLARIFY ANY DISCREPANCIES.
- WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
- SUBMIT A CHANGE ORDER FOR APPROVAL FOR ANY CHANGES TO WORK SCOPE RESULTING FROM FIELD CONDITIONS OR DIRECTION BY OWNER'S REPRESENTATIVE WHICH REQUIRE ADDITIONAL COST TO THE OWNER PRIOR TO PERFORMANCE OF WORK.

DEVELOPER/OWNER:
WALLY'S INDEPENDENCE, MO OWNER LLC
950 ASSEMBLY PARKWAY
FENTON, MO 63026
PHONE # (312) 730-0866

THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON HAS ASSURED THAT THE DESIGN, CALCULATIONS, AND CONSTRUCTION DETAILS SHOWN ON THESE PLANS COMPLY WITH THE CITY OF FENTON, MISSOURI, AND STATE OF MISSOURI, AND THAT THE PLANS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOTED HEREON ARE TRUE AND CORRECT. THE PROFESSIONAL'S SIGNATURE AND SEAL ARE REQUIRED FOR ANY PART OF THESE PLANS TO BE USED FOR ANY PURPOSES OF THE PROJECT TO WHICH THEY ARE REFERENCED.

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Lindsey F. Dikemper
P.E.-2024026198
on 08/05/2025.

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WALLY'S
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PLANT SCHEDULE

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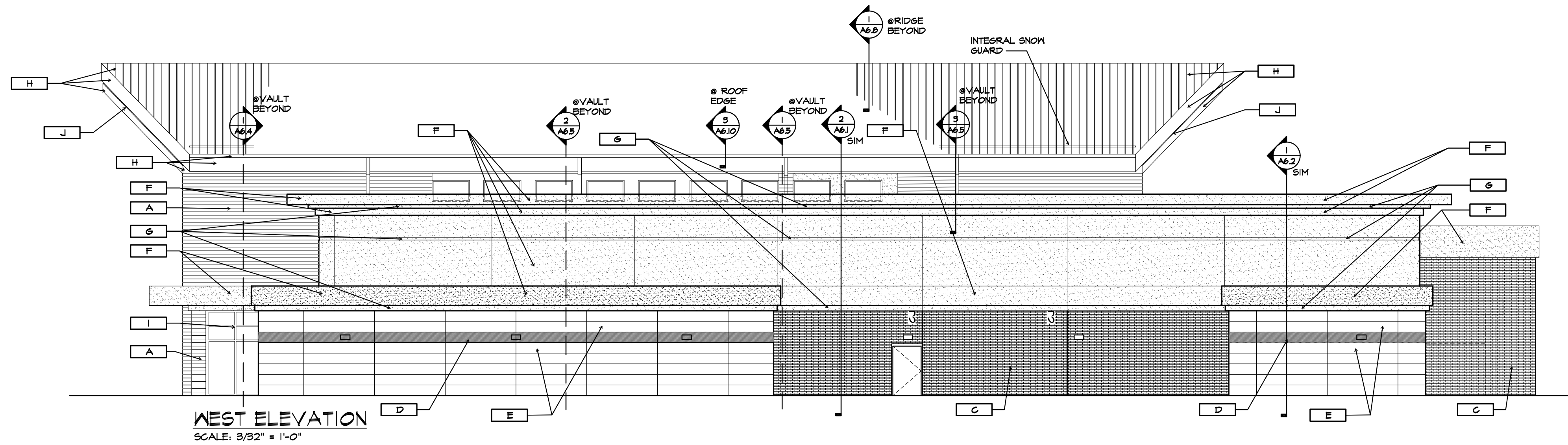
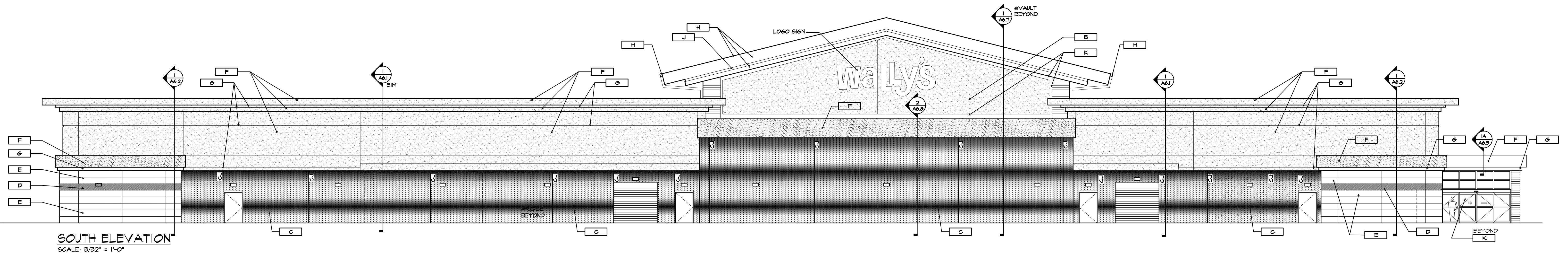
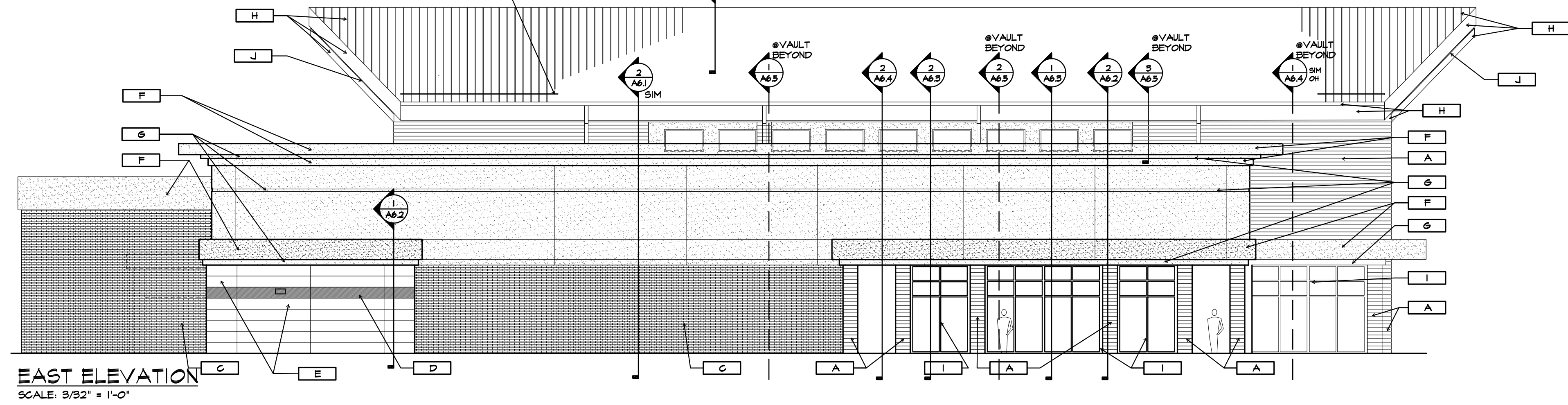
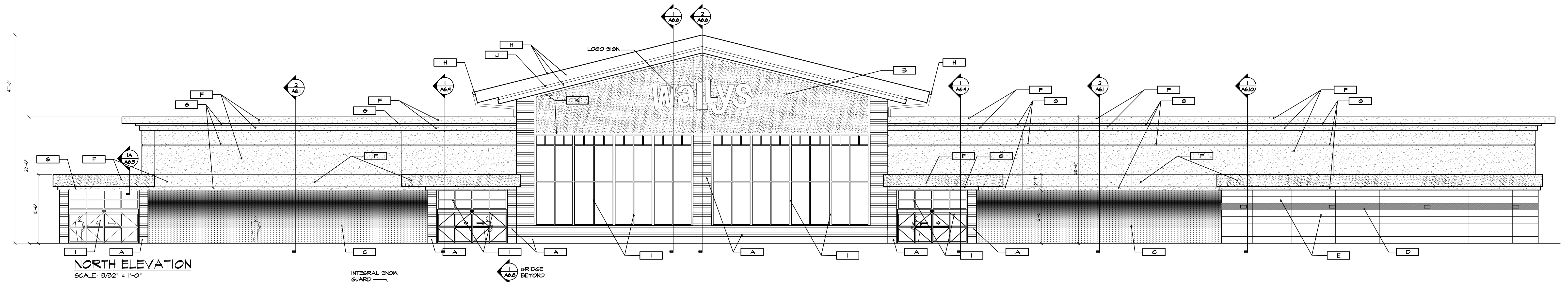
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DRAWING SCALE
AS SHOWN

DATE
08/05/2025

Job Number
24-0011

Sheet Number
L1.5



EXTERIOR FINISH LEGEND			
A	NIGHIA VINTAGEWOOD, REDWOOD PANELS	G	DRYVIT - EPS VENEER, COLOR: MOUNTAIN FOG #102
B	DRYVIT - EPS VENEER, COLOR: CUSTOM ORANGE-SEE OTHER	H	STANDING SEAM METAL ROOF, MTL. GUTTER/DOWNSPOUTS & PREFINISHED MTL. FASCIA, COLOR: GRANITE
C	BRICK VENEER-HEBRON BRICK, COLOR: SLATE GRAY, VELOUR MODULAR	I	CURTAINWALL WINDOW SYSTEM, ALUMINUM W/ 1\"/>

WALLY'S

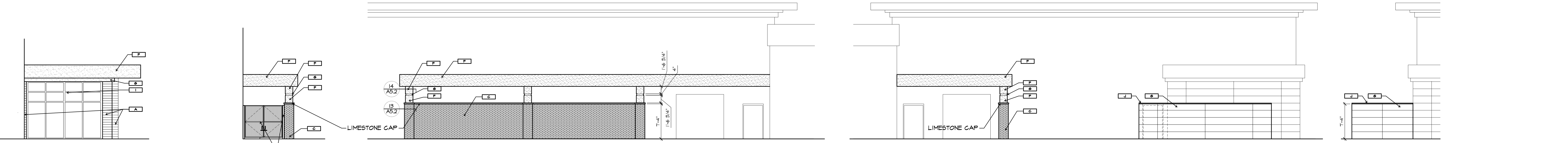
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PRELIMINARY

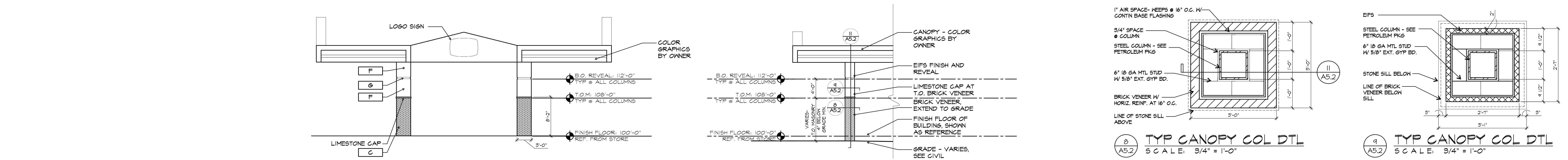
A5.1

**EXTERIOR
ELEVATIONS**

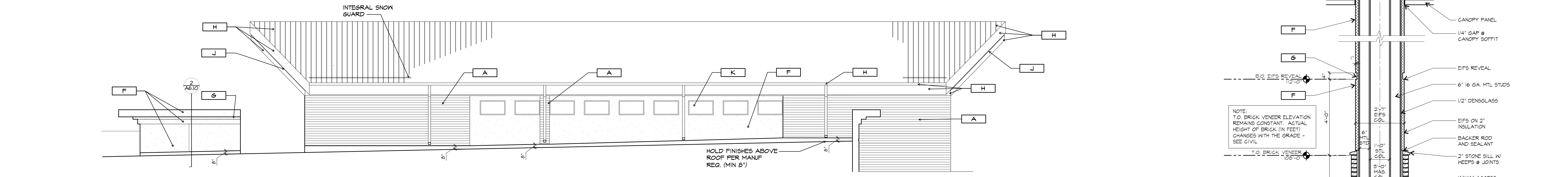
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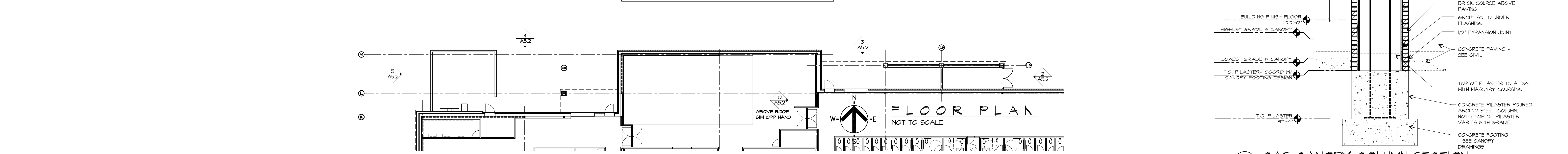
1 VESTIBULE ELEVATION A5.2 SCALE: 1/8" = 1'-0"
2 KUBOTA GATE A5.2 SCALE: 1/8" = 1'-0"
3 PARTIAL SOUTH ELEVATION @ KUBOTA STORAGE A5.2 SCALE: 1/8" = 1'-0"
4 SOUTH ELEV. @ CANOPY/ELEC. SERVICE A5.2 SCALE: 1/8" = 1'-0"
5 EAST ELEV. @ ELEC. SERV. A5.2 SCALE: 1/8" = 1'-0"



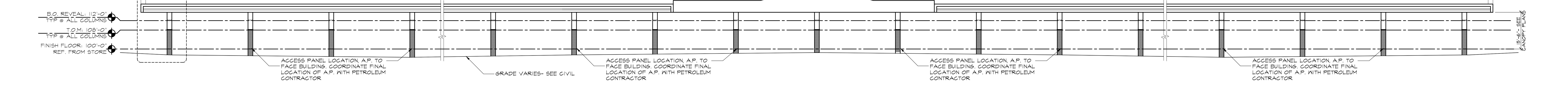
6 DIAGRAMMATIC FUEL CANOPY, EAST/WEST ELEVATION A5.2 SCALE: 1/8" = 1'-0"
7 ENLARGED FUEL CANOPY COLUMN ELEVATION A5.2 SCALE: 1/8" = 1'-0"
8 TYP CANOPY COL DTL A5.2 SCALE: 3/4" = 1'-0"
9 TYP CANOPY COL DTL A5.2 SCALE: 3/4" = 1'-0"



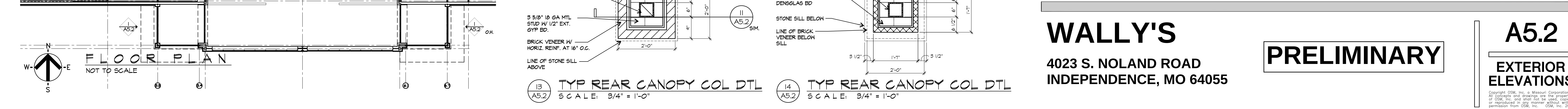
10 PARTIAL UPPER VAULT ELEVATION A5.2 SCALE: 1/8" = 1'-0"
EXTERIOR FINISH LEGEND SEE A5.1



FLOOR PLAN NOT TO SCALE
11 GAS CANOPY COLUMN SECTION A5.2 SCALE: 1/2" = 1'-0"



12 DIAGRAMMATIC FUEL CANOPY, NORTH/SOUTH ELEVATION A5.2 SCALE: 1/16" = 1'-0"



FLOOR PLAN NOT TO SCALE
13 TYP REAR CANOPY COL DTL A5.2 SCALE: 3/4" = 1'-0"
14 TYP REAR CANOPY COL DTL A5.2 SCALE: 3/4" = 1'-0"

WALLY'S

4023 S. NOLAND ROAD
INDEPENDENCE, MO 64055

PRELIMINARY

A5.2
EXTERIOR
ELEVATIONS

Wally's Exterior Building Materials						
	SF					Element Total SF
	Brick	Nichiha	Glass	EIFS	Metal	
North	1,425	1,660	2,070	4,727	401	10,283
East	1,314	1,478	744	2,853	2,243	8,632
South	3,429	763	200	5,147	721	10,260
West	1,041	2,052	344	3,172	2,273	8,882
Delivery/Storage Canopies	424	0	0	341	0	765
Trash Enclosure	611	0	0	0	381	992
Utility Screen	0	278	0	0	0	278
Aggregate Material Total SF						40,092
Individual Material total SF	8,244	6,231	3,358	16,240	6,019	
Material percentage of Aggregate SF	20.6%	15.5%	8.4%	40.5%	15.0%	

AUGUST 5, 2025

Initially Submitted June 12, 2025

Wally's Independence Traffic Impact Study

Independence, Missouri

Prepared for:

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EXECUTIVE SUMMARY

Lochmueller Group has completed the following traffic study pertaining to the proposed Wally's to be located in the City of Independence, Missouri. The site is proposed off of Noland Road, at the intersection of Canterbury Place and Lynn Court Drive, just northeast of the Interstate 70 (I-70) and Noland Road interchange. The site will include a Wally's Travel Center (54.0 KSF) with 84 fueling positions. The existing Northern Tool & Equipment Store would be removed and replaced by the proposed Wally's. Access to the site would be provided primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street.

The intent of this study is to identify the traffic generation associated with the proposed redevelopment, analyze the associated traffic impacts, and determine the need for mitigation measures, if necessary. As discussed in the scoping meeting on November 26, 2024, with the Missouri Department of Transportation (MoDOT) and the City of Independence, the following scenarios will be evaluated:

- Year 2024 Existing
- Year 2026 Baseline (Existing + 2 years background growth)
- Year 2026 Forecasted (with development in place)
- Year 2046 Baseline (predevelopment)
- Year 2046 Forecasted (with development in place)

The following five peak hours were agreed upon to be part of the analysis:

- Weekday morning (7:00 AM to 8:00 AM),
- Truman High School Dismissal (2:30 PM to 3:30 PM),
- Elementary School Dismissal (4:00 PM to 5:00 PM),
- Weekday evening (5:00 PM to 6:00 PM), and
- Saturday midday (11:30 AM to 12:30 PM)

However, as agreed upon with the City of Independence and MoDOT, only the weekday AM and PM peak hours and the Saturday midday peak hour were modeled with respect to I-70 as it was determined that those time periods were the most critical for the interstate. The reasoning was that if I-70 and its interchange with Noland Road could support the proposed Wally's traffic during these critical time periods then the remaining two peak hours, the Truman High School and Elementary peak dismissal hours, could also be supported since those time periods were typically less congested along I-70 as compared to the commuter and/or weekend peak hours.

EXISTING AND NO-BUILD CONDITIONS

2024 EXISTING CONDITIONS

- The study intersections generally operate favorably in the 2024 Existing conditions. Some side-street approaches at unsignalized intersections along Noland Road experience long delays as they wait for gaps in traffic to complete their turning movement, but that is not uncommon

during peak periods in suburban areas. Additionally, the southbound and northbound queues at the I-70 and Noland Road interchange extend past the adjacent ramp terminals, which is not uncommon with a tight diamond configuration. The southbound queue length on Noland Road from the I-70 ramp terminals does not extend past Lynn Court Drive, and the northbound queue does not extend past 42nd Terrace, indicating that the interchange does operate acceptably.

- Overall, the existing conditions indicate that there is adequate capacity at the study intersections.
- Under existing conditions, the study area has experienced 1,082 crashes between 2019 and 2023. The most common crash classification was Rear End accounting for 42% of all crashes. Other common types include Passing and Out of Control which were largely focused near the I-70 acceleration and deceleration lanes for ramp entrances and exits.
- The following recommendations were offered for consideration as a means of improving existing conditions along the Noland Road corridor:
 - Extending the existing acceleration lanes along I-70 at the Noland Road interchange,
 - Correcting the existing offset at the signalized intersection of Noland Road and Lynn Court Drive, and
 - Closing the existing southern Hardee's access drive along Noland Road due to its proximity to the signalized intersection with Lynn Court Drive.

2026 NO-BUILD CONDITIONS

- The year 2026 was used as the project's construction year for purposes of evaluating traffic operations conditions associated with the proposed development. No modifications were made to the existing lane configurations.
- An annual background growth rate of 0.35% for the overall study area and I-70 Corridor was used to forecast future traffic volumes (as agreed to by MoDOT and the City of Independence).
- Upon evaluation, in 2026 the overall study area would experience slightly worsened delays and queue lengths as compared to the 2024 Existing operations, but the network would still be expected to operate acceptably overall.
- Safety analysis models show the predicted number of crashes should be 135.5 annual crashes under 2026 No-Build conditions in the study area. The predicted analysis yielded a lower annual crash rate than the existing rate, thereby indicating the existing roadway network within the study area experiences more crashes as compared to other roadways of similar volume and characteristics.

2046 NO-BUILD CONDITIONS

- The year 2046 was used as the project's horizon design year for purposes of evaluating traffic operations conditions into the future at a planning-level. No modifications were made to the existing lane configurations.

- Upon evaluation, in 2046 the overall study area would experience worsened delays and queue lengths when compared to the 2024 Existing conditions and 2026 No-Build conditions. However, it is anticipated that operations overall within the network would still operate acceptably.
- Safety analysis models show the predicted number of crashes should be 150.5 annual crashes under 2046 No-Build conditions in the study area. This represents an increase of 15 crashes per year as compared to 2026 No-Build conditions, which is attributable to the increased number of vehicles in the roadway network.

PROPOSED DEVELOPMENT

- It is anticipated that the proposed Wally's would provide 84 fueling stations. The proposed Wally's is expected to generate the following trips during each of the critical time periods included in this study:
 - 660 total trips during the weekday AM peak hour
 - 709 total trips during the Truman High School Dismissal peak hour
 - 582 total trips during the Elementary School Dismissal peak hour
 - 632 total trips during the weekday PM peak hour, and
 - 625 total trips during the Saturday Midday peak hour
- Access to the site would be provided primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street.

RECOMMENDED IMPROVEMENTS

In conjunction with the proposed Wally's Travel Center, several roadway improvements are recommended. While some improvements would be necessary as a result of the traffic generated by the proposed Wally's, several improvements such as extending the existing acceleration lanes along I-70 at the Noland Road interchange and/or aligning the existing offset intersection of Noland Road with Lynn Court Drive would be recommended regardless of the proposed development as a means of improving conditions (from both a traffic operations and safety perspective) along S Noland Road and/or I-70. Ultimately, it is recommended that the following roadway improvements be made prior to the opening of the Wally's Travel Center:

- I-70 EB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Extend the eastbound acceleration lane by a minimum of 145 ft.
- I-70 WB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Maximize the acceleration lane for the existing westbound on ramp to provide approximately 900 ft, inclusive of taper. Note that the proposed taper would end right before the guardrail for the existing railroad overpass. It should be noted that this

length would still not meet AASHTO guidelines given the proximity of the railroad overpass. However, this extension would still represent an improvement as compared to existing conditions.

- Noland Road & I-70 EB Ramp Terminal:
 - Extend the existing four-lane section of the eastbound approach to a total of 400 ft measured from the stop-bar.
- Noland Road & I-70 WB Ramp Terminal:
 - Provide an additional westbound right-turn lane to ultimately provide two left turns lanes and two right turn lanes. The dual right-turn lanes should be signalized, allowing right-turns on red after stop. The right-turn lanes should feed into the two existing northbound through lanes.
- Noland Road & Lynn Court Drive:
 - Reconstruct the intersection to correct the existing offset and to allow for the eastbound and westbound approaches to run concurrently. The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide a dedicated left-turn lane and a shared thru/right turn lane.
 - Westbound Approach:
 - Provide dual left-turn lanes, one through lane, and one right-turn lane.
 - Northbound Approach:
 - Provide one left-turn lane, two thru lanes, and one channelized right-turn lane.
 - Southbound Approach:
 - Provide one left-turn lane, one thru lane, and one shared through/right-turn lane.
 - Extend the striping for the southbound left-turn lane to increase the storage length, but do not modify the existing median.
 - Provide new traffic signal structures, appurtenances, and pedestrian signalization (with the exception of the SE quadrant).
 - Provide three southbound lanes immediately south of Lynn Court Drive and extending to the I-70 EB ramp terminal.
 - Close the southernmost Hardee's access drive just north of this intersection to reduce conflicts within the signalized intersection.
- Lynn Court Drive & Canterbury Place:
 - Provide a stop-controlled intersection where northbound and southbound traffic is required to stop and eastbound and westbound traffic travels freely.
 - The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.

- Westbound Approach:
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - Northbound Approach:
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
 - Southbound Approach:
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
- 39th Street & Canterbury Place
 - Restrict the unsignalized intersection to ¾ access (northbound left turn not permitted) via the construction of a channelized island on the northbound approach.
 - However, should the City of Independence desire, full access at this intersection could remain.
- Noland Road & 42nd Street:
 - Consideration should be given towards restricting left-turns for the eastbound and westbound approaches to improve the efficiency of this unsignalized intersection. The existing left-turning vehicles can divert to the signalized intersection of 42nd Terrace.
- Signal Timing Improvements:
 - Signal timing improvements along the Noland Road corridor are recommended prior to the Wally's Travel Center being in place. It is anticipated that all cycle lengths, with the exception of the Saturday midday, would remain the same. It is recommended that the Saturday midday cycle length be adjusted from 100 seconds to 110 seconds. A full signal timing progression analysis and implementation along the Noland Road corridor is recommended. It should be noted that coordination between Operation Green Light (OGL) will be necessary prior to the implementation of the new signal timings.

2026 AND 2046 FORECASTED CONDITIONS

The results and conclusions for the following scenarios assume the full build of the proposed Wally's Travel Center is in place and all recommended improvements presented above.

2026 FORECASTED CONDITIONS

- The year 2026 was used as the construction year for evaluating near-future traffic conditions.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. Side-street approaches would continue to operate with long delays similar to the 2026 No-Build conditions.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place. The additional westbound right-turn lane at the westbound ramps adds capacity to the interchange, improving the operations. The southbound queue

length at the eastbound ramps would be expected to extend past the westbound ramp terminal. However, the average queue length would not be expected to extend past Lynn Court Drive.

- The realigned intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during all peak hours. The average westbound queue length would be well contained within the existing laneage. However, during peak periods, the max westbound queue would extend past Canterbury Place periodically.
- The internal intersection of Lynn Court Drive and Canterbury Place would be expected to operate well with minimal queues.
- Under the 2026 No-Build conditions, the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS E, but with the recommended northbound left-turn restriction in place, the approach would improve to a LOS B in the 2026 Forecasted conditions.
- Overall, it was concluded that with the recommended improvements in place, the roadway network in the year 2026 will operate acceptably and have adequate capacity with the proposed Wally's in place.
- Safety analysis models show the 2026 Forecasted conditions should result in 138.3 crashes per year in the study area. This is a *minimal* net increase of 2.8 crashes per year as compared to the 2026 No-Build conditions. The minimal increase in crashes is simply due to the increased number of vehicles entering Noland Road to access Wally's that otherwise would not be present under No-Build conditions. Freeway crashes are slightly *reduced* under 2026 Forecasted conditions due to the increased acceleration and deceleration lengths and the lower volumes under the Noland Road interchange (traffic diverted to the proposed Wally's).

2046 FORECASTED CONDITIONS

- The 2046 Forecasted conditions are similar to the 2026 Forecasted conditions with generally acceptable operating conditions throughout the study area.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to continue to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place with an overall LOS C or better for both ramp terminals.
 - The maximum queue lengths for the northbound and southbound approaches would be expected to extend past the adjacent ramp terminals to Lynn Court Drive and 42nd Street. However, the average queue length would not extend past these intersections.
- The intersection of Noland Road and Lynn Court Drive would be expected to continue to operate at an overall LOS B during all peak periods. The average queues would not be expected to extend past nearby intersections and the v/c ratios indicate that there is surplus capacity at this intersection despite the addition of Wally's. However, it should be noted that during peak periods, the max westbound queue would extend past Canterbury Place periodically.

- The internal intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well with a LOS C or better for each approach.
- Under the 2046 No-Build conditions, the northbound approach at Canterbury Place & E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS F, but with the recommended northbound left-turn restriction in place, the approach would operate at a LOS B through the year 2046.
- Compared to the 2046 No-Build scenario, the overall roadway network would operate acceptably, and with signal timing modifications and lane configuration changes, some of the roadway network would experience shorter delays and queues.
- Safety models predict an annual crash rate of 151.8 crashes per year under 2046 Forecasted conditions. This is a *minimal* net increase of 1.8 crashes per year over the 2046 No-Build. Similar to the 2026 Forecasted conditions comparison, the increase in total crashes is due to the increased number of vehicles attracted to Noland Road due to Wally's that otherwise would not be present on the roadway. The net increase in crashes is minimal at less than 1% per year as compared to No-Build conditions.

Overall, it was concluded that with the recommended improvements in place, the roadway network can accommodate the increased traffic volumes attributable to the proposed Wally's through the year 2046. The following report presents, in detail, the methodology and resulting analysis that support these conclusions.

INTRODUCTION

Lochmueller Group has prepared the following traffic impact study pertaining to the proposed Wally's Travel Center in the City of Independence, Missouri. The proposed Wally's Travel Center will span approximately 54,000 square feet and is designed to feature 84 fueling positions, making it a significant commercial addition to the area. Primary vehicular access to the site is expected to be provided directly from S Noland Road, aligned opposite Lynn Court Drive. A secondary access point will be available via Canterbury Place, which connects to East 39th Street, thereby offering additional access for site traffic. A map of the project study area is located in **Figure 1**.

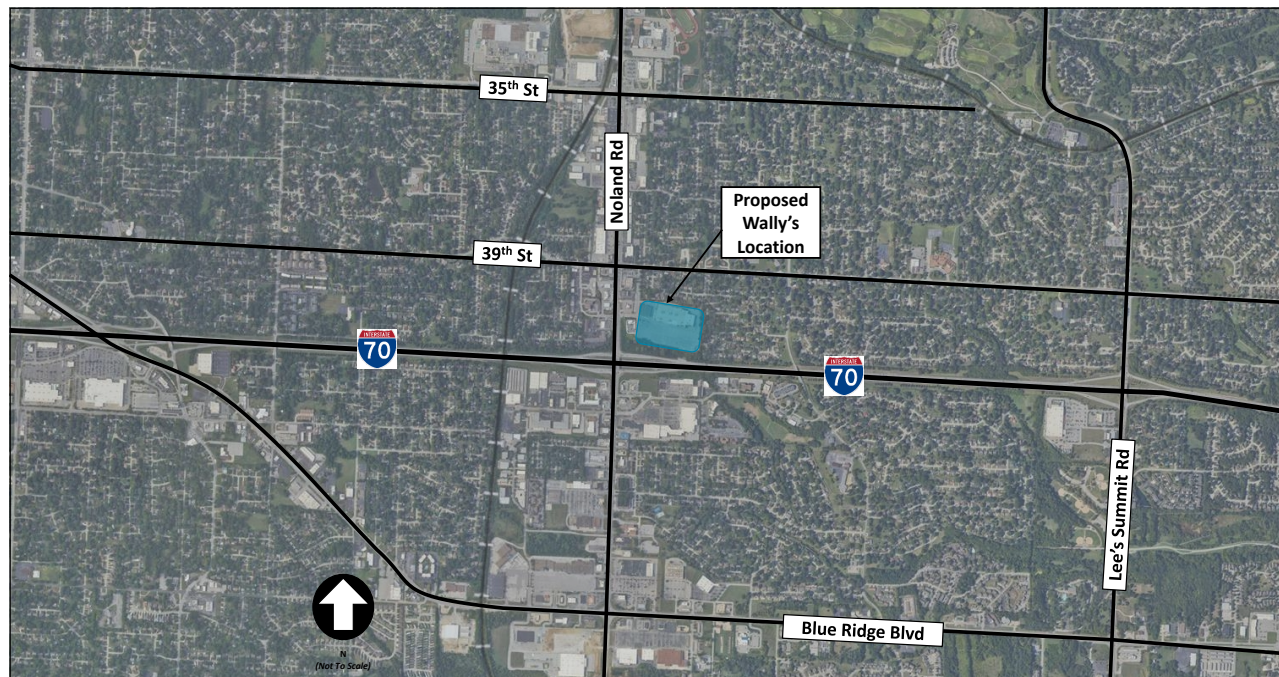


Figure 1. Project Study Area

The intent of the traffic study is to identify the traffic generation associated with the proposed development, analyze the associated traffic impacts, and determine the need for mitigation measures, if necessary. As such, this report summarizes the Existing, 2026 No-Build, 2046 No-Build, 2026 Forecasted, and 2046 Forecasted traffic operations within the study area to evaluate the impact that the proposed Wally's may have on the surrounding roadway network. Additionally, this report details the proposed improvements considered within the study area in order to address existing deficiencies and/or anticipated traffic impacts resulting from the proposed Wally's development.

This report details the final projected operating conditions within the proposed Wally's Travel Center in place and addresses the potential downstream impacts to the intersections along the Noland Road corridor, as well as traffic from I-70 between the US 40/Blue Ridge Boulevard and Lee's Summit Road interchanges, assuming no additional improvements at the US 40/Blue Ridge Boulevard or Lee's Summit Road interchanges are implemented.

EXISTING CONDITIONS

To identify the traffic impacts associated with the proposed development, it was necessary to first quantify roadway, traffic, and operating conditions as they currently exist.

DATA COLLECTION AND FIELD INVENTORY

EXISTING ROADWAY NETWORK

Interstate 70 (I-70) runs east-west and is functionally classified as interstate. The posted speed limit along I-70 within the study area is 65 miles per hour (mph). I-70 is generally comprised of three lanes in each direction within the study area.

Noland Road runs north-south and is functionally classified as a principal arterial. Noland Road generally has two lanes in each direction with turn lanes at intersections. The posted speed limit along Noland Road is 35 mph.

The I-70 and Noland Road interchange is configured as a tight diamond. Both the eastbound and westbound off-ramps are signalized. The eastbound entrance ramp has one lane, and the exit ramp has two exclusive left turn lanes and two exclusive channelized right turn lanes. The northbound approach has three through lanes and one shared through/right turn lane, where the right-turn is channelized. The southbound approach has one dedicated left-turn lane and one through lane.

The westbound entrance ramp has two receiving lanes which merge into one lane prior to reaching I-70. The westbound exit ramp has two exclusive left turn lanes and one exclusive channelized right turn lane. The northbound approach has two left-turn lanes and two through lanes. The southbound approach has three through lanes and one channelized right-turn lane.

42nd Terrace runs east-west and is functionally classified as a local road. 42nd Terrace generally consists of one lane in each direction. At the signalized intersection with Noland Road, 42nd Terrace west of Noland Road includes one shared through/right turn lane and one exclusive left turn lane. The westbound approach includes a shared through/left turn lane and one exclusive right turn lane. The northbound and southbound approaches are comprised of one left-turn lane, one through lane, and one shared through/right-turn lane. The posted speed limit is 30 mph.

42nd Street runs east-west and is functionally classified as a local road. 42nd Street generally consists of one lane in each direction. At the unsignalized intersection with Noland Road, 42nd Street consists of one lane for entering traffic and one lane for exiting traffic, for both eastbound and westbound traffic. The northbound and southbound approaches are comprised of one left-turn lane, one through lane, and one shared through/right-turn lane. Traffic traveling along 42nd Street is required to stop whereas traffic traveling along Noland Road travels freely. The eastbound lanes are separated by a 28-foot wide median.

E Lynn Court Drive runs east-west and is functionally classified as a local road. The intersection of Noland Road and E Lynn Court Drive is signalized. Both the east and west legs of the intersection, which

are offset from one another by approximately 30 feet, have one shared through/left turn lane and one exclusive right turn lane. The east leg lanes are separated by a 6-foot median. The northbound approach is comprised of one left-turn lane, two through lanes, and one channelized right-turn lane. The southbound approach is comprised of one left-turn lane, one through lane, and one shared through/right-turn lane.

Canterbury Place runs north-south and generally has one lane in each direction. The intersection of Canterbury Place at E Lynn Court Drive is unsignalized where traffic traveling along E Lynn Court is required to stop and traffic traveling along Canterbury Place travels freely. Each approach is comprised of a single lane.

E 39th Street runs east-west and is classified as a minor arterial. The posted speed limit is 35 mph. E 39th Street generally has one lane in each direction and a two-way left-turn lane (TWLTL). The intersection of E 39th Street and Noland Road is signalized. Both the east and west legs have one exclusive left-turn lane, one through lane, and one exclusive right-turn lane.

The intersection E 39th Street and Lynn Court Drive is unsignalized where traffic traveling along E 39th Street travels freely and traffic traveling along Lynn Court Drive is required to stop. The eastbound approach of E 39th Street is comprised of a single lane whereas the westbound approach is comprised of a left-turn lane within the TWLTL and a through lane. The northbound approach is comprised of a single lane.

The intersection of E 39th Street and Canterbury Place is unsignalized where traffic traveling along E 39th Street travels freely and traffic traveling along Canterbury Place is required to stop. The eastbound approach of E 39th Street is comprised of a right-turn lane and a shared through/left-turn lane whereas the westbound approach is comprised of a left-turn lane within the TWLTL and a shared through/right-turn lane. The northbound and southbound approaches are comprised of a single lane.

Hocker Avenue is classified as a local road. At the Hocker Avenue intersection, E 39th Street has one lane in each direction with a TWLTL. Hocker Ave has one lane in each direction at the intersection. Traffic traveling along E 39th Street travels freely and traffic traveling along Hocker Avenue is required to stop.

Phelps Road is classified as a major collector with a posted speed limit of 35 mph. At the signalized intersection of Phelps Road, the northbound approach includes one exclusive left turn lane, one through lane, and one exclusive right turn lane. The southbound approach includes one exclusive left turn lane and one shared through/right-turn lane. The eastbound approach is comprised of one exclusive left-turn lane, one through lane, and one exclusive right-turn lane. The westbound approach includes one exclusive left turn lane and a shared through/right turn lane.

Lee's Summit Road runs north-south and is classified as a minor arterial with a posted speed limit of 35 mph. The intersection of Lee's Summit Road and E 39th Street is signalized. The eastbound and southbound approaches include an exclusive left turn lane, an exclusive right turn lane, and an exclusive through lane. The westbound approach is comprised of two left-turn lanes, one through lane, and one

right-turn lane. The northbound approach is comprised of one left-turn lane, two through lanes, and two right-turn lanes.

The I-70 and Lee's Summit Road interchange is configured as a traditional diamond. At the eastbound ramp terminal, the southbound approach of Lee's Summit Road consists of two through lanes and one exclusive left turn lane on the north leg. The northbound approach consists of an exclusive right turn lane, two through lanes, and a third through lane that becomes an exclusive left turn lane just past the intersection for access to the westbound I-70 entrance ramp. At the I-70 westbound ramp terminal, northbound Lee's Summit Road consists of two through lanes and one exclusive left turn lane. The southbound approach consists of an exclusive right turn lane, two through lanes, and a third through lane that becomes an exclusive left turn lane just past the westbound ramps for access to the eastbound I-70 entrance ramp.

37th Street runs west of Noland Road and is classified as a local road. The intersection of 37th Street and Noland Road is unsignalized. 37th Street has one shared lane for through/right/left turn lane. The northbound and southbound approaches along Noland Road are comprised of one left-turn lane within a TWLTL, one through lane, and one shared through/right-turn lane.

Noland Court runs on the east side of Noland Road and is classified as a local road. The intersection of Noland Court and Noland Road is signalized. The eastbound and westbound approaches of Noland Court are comprised of one lane in each direction. The northbound and southbound approaches along Noland Road are comprised of one left-turn lane, one through lane, and one shared through/right-turn lane.

E 35th Street runs east-west and is functionally classified as a minor arterial with a posted speed limit of 35 mph. E 35th Street generally has one lane in each direction, and west of Noland Road the road typically includes a two-way left turn lane. The intersection of E 35th Street and Noland Road is signalized. Both the eastbound and westbound approaches include one exclusive left turn lane, one exclusive through lane, and a shared through/right turn lane. The northbound and southbound approaches consist of two left-turn lanes, one through lane, and one shared through/right-turn lane.

Blue Ridge Boulevard is classified as a minor arterial south of I-70 and a major collector north of I-70. Blue Ridge Boulevard has a posted speed limit of 35 mph and generally consists of one lane in each direction. The Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 is unsignalized. The northbound approach is comprised of one left-turn lane and one through lane. The southbound approach is comprised of one shared through/right-turn lane.

The Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop is also unsignalized. The northbound approach is comprised of one shared left-turn lane/through lane. The southbound approach is comprised of one shared through/right-turn lane.

US 40 runs east-west and is classified as a principal arterial. The posted speed limit of US 40 within the study area is 40 mph. US 40 generally has two lanes in each direction. The US 40 and I-70 interchange is a diamond interchange. The westbound ramp terminal at the Blue Ridge Blvd, US 40, and the westbound 70 Ramps is signalized. The northbound approach is comprised of a left-turn lane and two through lanes. The southbound approach is comprised of one through lane and one shared through/right-turn lane.

The westbound approach is comprised of one shared left-turn/through lane and one right-turn lane. The west leg serves as the on-ramp to westbound I-70.

The eastbound ramp terminal at the US 40 and the eastbound 70 Ramps is signalized. The northbound approach is comprised of one through lane and one shared through/right-turn lane. The southbound approach is comprised of one left-turn lane and two through lanes. The eastbound approach is comprised of one left-turn and two right-turn lanes. The east leg serves as the on-ramp to eastbound I-70.

The existing lane configuration and traffic control is shown in **Figure 2** through **Figure 4**.



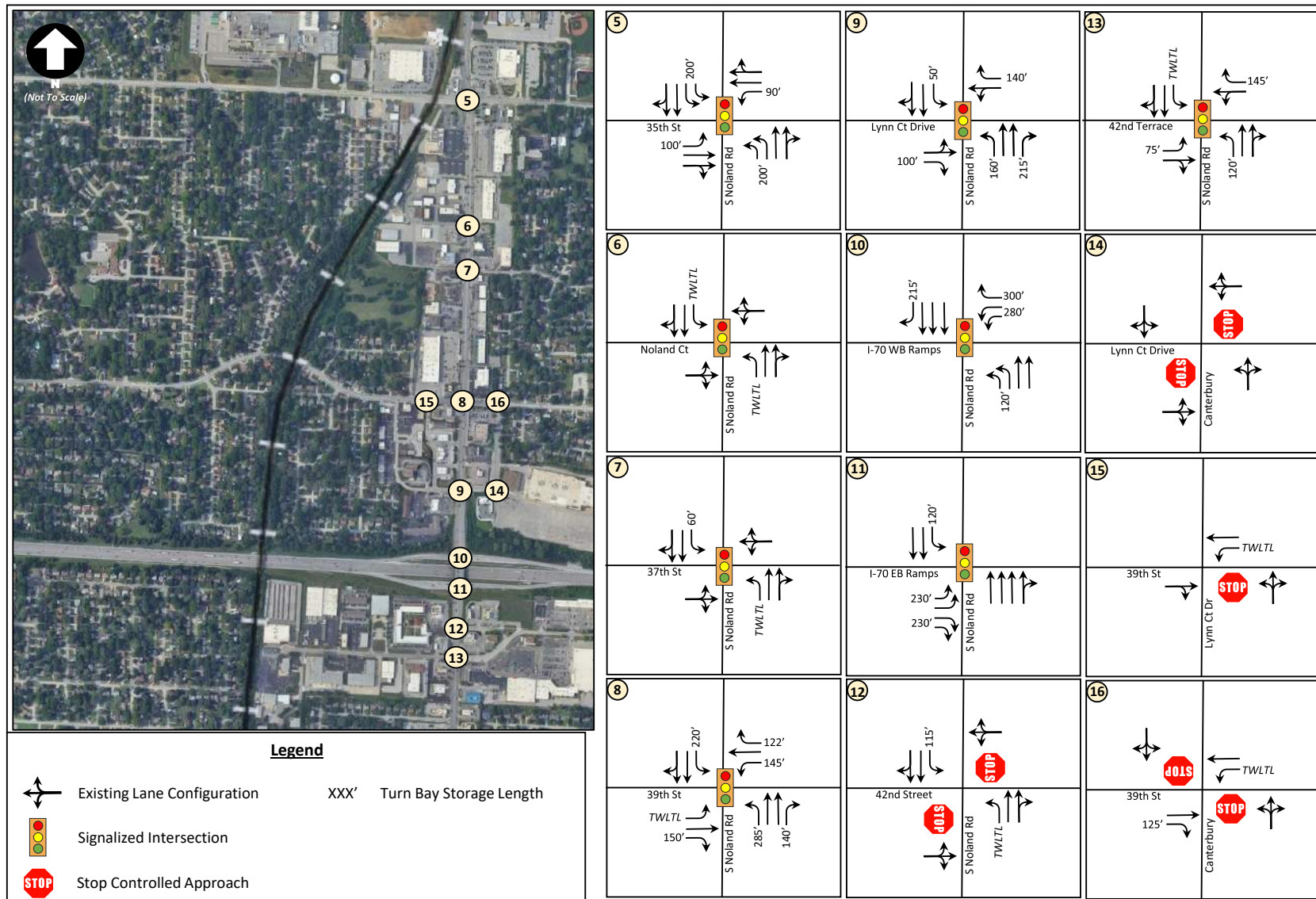


Figure 3. Existing Lane Configuration and Traffic Control (Sheet 2 of 3)

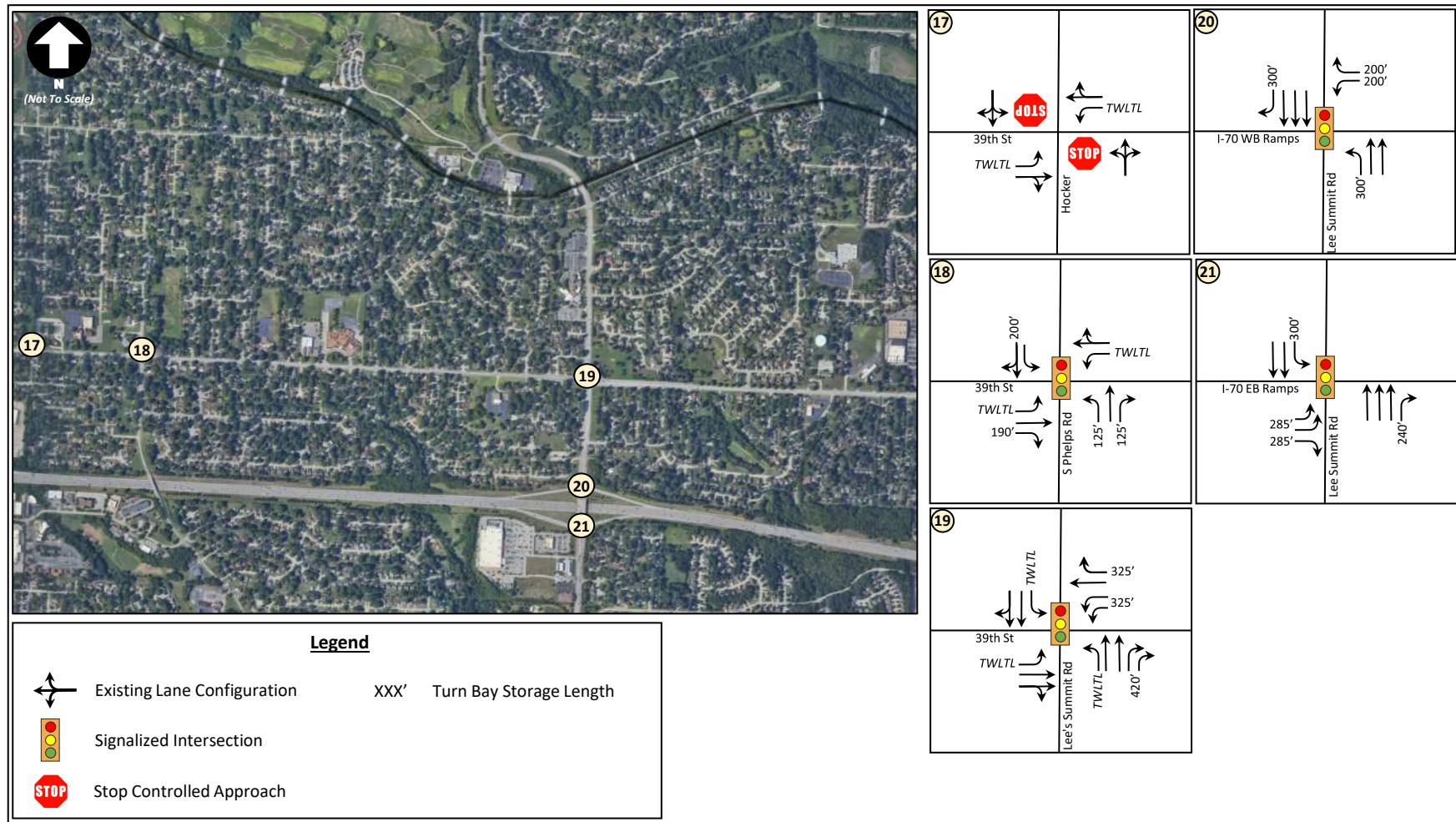


Figure 4. Existing Lane Configuration and Traffic Control (Sheet 3 of 3)

EXISTING TRAFFIC VOLUMES

Traffic counts were collected over a twelve-hour period (6:00 AM to 6:00 PM) on a typical weekday. Four-hour counts (10:00 AM to 2:00 PM) were collected on a typical Saturday. The traffic counts were performed on May 2, May 4, and May 11, 2024 while school was in session. Given the close proximity of numerous schools to the redevelopment site, traffic operational analysis was completed for weekday morning (7:00 AM to 8:00 AM), Truman High School Dismissal (2:30 PM to 3:30 PM), Elementary School Dismissal (4:00 PM to 5:00 PM), weekday evening (5:00 PM to 6:00 PM), and Saturday midday (11:30 AM to 12:30 PM) peak periods. Based on input from the review agencies, the following intersections are included in the study:

1. S Noland Rd & 42nd Terrace (signal)
2. S Noland Rd & 42nd Street (unsignalized)
3. S Noland Rd & I-70 EB ramps (signal)
4. S Noland Rd & I-70 WB ramps (signal)
5. S Noland Rd & Lynn Ct Drive (signal)
6. S Noland Rd & 39th Street (signal)
7. S Noland Rd & 37th Street (unsignalized)
8. S Noland Rd & Noland Ct (signal)
9. S Noland Rd & 35th Street (signal)
10. 39th Street & Lynn Ct Drive (unsignalized)
11. 39th Street & Canterbury (unsignalized)
12. 39th Street & Hocker (unsignalized)
13. 39th Street & S Phelps Road (signal)
14. 39th Street & Lee's Summit Road (signal)
15. Canterbury Place & Lynn Ct Drive (unsignalized)
16. Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)
17. Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (new construction)
18. Blue Ridge Blvd/US 40 Interchange & US 40 / WB 70 Ramps (signal)
19. Blue Ridge Blvd/US 40 Interchange & US 40 / EB 70 Ramps (signal)
20. Lee's Summit Interchange & I-70 EB ramps (signal)
21. Lee's Summit Interchange & I-70 WB ramps (signal)

Based upon input from MoDOT and a review of data collected in May 2023 for MoDOT's project J4I3195, it was determined that it would be appropriate to adjust the May 2024 data upwards by 10% along Noland Road between 42nd Terrace Street and 35th Street. This adjustment was applied to all traffic utilizing Noland Road (through movements as well as turning movements onto and off of the corridor). Once adjusted, the existing traffic volumes used as the basis of the analysis for this study closely align with the base volumes used in MoDOT's project. In addition, the mainline I-70 volumes were adjusted upward to align with the mainline traffic volumes utilized by MoDOT in project J4I3195.

The 2024 adjusted existing traffic volumes are shown in **Appendix A**.

ANALYSIS METHODOLOGY

TRAFFIC OPERATIONS

Intersection performance or traffic operations are quantified by six Levels of Service (LOS), which range from LOS A ("Free Flow") to LOS F ("Fully Saturated"). LOS C is normally used for design purposes and represents a roadway with volumes ranging from 70% to 80% of its capacity. LOS E is considered acceptable for peak period conditions in urban and suburban areas and would be an appropriate benchmark of acceptable traffic for the study area road system.

Levels of service for intersections are determined based on the average delay experienced by motorists. Signalized intersections reflect higher delay tolerances as compared to unsignalized and roundabout locations because motorists are accustomed to and accept longer delays at signals. For signalized, all-way stop, and roundabout intersections, the average control delay per vehicle is estimated for each movement and then aggregated for each approach and the intersection as a whole. For intersections with partial (side-street) stop control, the delay is calculated for the minor movements only (side-street approaches and major road left-turns) since thru traffic on the major road is not required to stop.

Table 1 summarizes the criterion for both signalized and unsignalized intersections, as defined by the Highway Capacity Manual (HCM) 6th Edition, last updated in 2016 by the Transportation Research Board.

Table 1. Intersection Level of Service Thresholds

Level of Service	Control Delay per Vehicle (sec/veh)	
	Signalized	Unsignalized/Roundabout
A	≤ 10	0-10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

The baseline 2024 traffic operating conditions at the critical study intersections were evaluated based upon the traffic volumes presented in Appendix A. The analysis was completed using Synchro 11 traffic modeling software, which is based upon the methodologies outlined in the "Highway Capacity Manual" (HCM) published by the Transportation Research Board.

In addition to Synchro, VISSIM software was also used, which is a microsimulation tool that accurately replicates individual vehicles and their interactions within complex traffic streams, such as interchanges, freeways, and expressway corridors with signalized intersections. As such, I-70 (including the ramp terminals) from US 40/Blue Ridge Boulevard to Lee's Summit Road were included within the VISSIM model. The intersections along Noland Road from 42nd Terrace to 39th Street were also included in the VISSIM model.

It should be noted that VISSIM provides a higher accuracy for the measures of effectiveness than Synchro given that is a highly customizable microsimulation tool. As such, per MoDOT's request, the Synchro results are only shown for the study intersections not included within the VISSIM model as the VISSIM results have a higher confidence level.

Additionally, as agreed upon with the City of Independence and MoDOT, only the weekday AM and PM peak hours and the Saturday midday peak hour were modeled in VISSIM as it was determined that those time periods were the most critical for the study area. The reasoning was that if I-70 and its interchange with Noland Road could support the proposed Wally's traffic during these critical time periods then the remaining two peak hours, the Truman High School and Elementary peak dismissal hours, could also be supported since those time periods were typically less congested than the commuter peak hours.

The VISSIM traffic simulation model calibration process began with acquiring of the "Improve I-70" VISSIM model developed for MoDOT's overlapping study area covering I-70 from Manchester Bridge to I-470 (MoDOT's project J4I3195). This model was then adjusted to focus on the Noland Road interchange, the interchange the majority of the proposed Wally's traffic would utilize. Data collection was conducted to provide traffic volumes for the modified network and verify current signal timings.

With the network backbone established, the received model was reviewed and modified as necessary. Free-flow speed distributions provided accurately reflected speeds recorded by RITIS during free-flow conditions. Reduced speed areas were also reviewed or generated for turning movements and locations in the network where the roadway geometry physically limits speeds below the free-flow speed or posted speed limits. Next, traffic control measures were addressed. Locations where yielding or traffic control priority needed to be established (such as a right-turn-on-red) were coded with conflict areas or priority rules. Conflict areas are most commonly used unless further refinement of the gap times or yielding characteristics was necessary, in which case priority rules were deployed.

Traffic volumes were then represented in the VISSIM model as an origin-destination matrix estimated from turning movement counts for each of the peak hours considered. The matrix specifies the model's traffic patterns and the routes vehicles take to traverse the model network. Traffic entering the model network was coded using vehicle inputs. Vehicle inputs specify volumes and vehicle type compositions, which were grouped into passenger vehicles, and HGVs. The origin-destination matrix was routed statically with routes traversing the entire network for optimum accuracy rather than simply intersection by intersection.

Since VISSIM starts with zero vehicles in the network, a warm-up period is needed to initiate the model with traffic prior to capturing data. The warm-up period is known as the seeding period and its length and volume characteristics were adjusted as part of the calibration process. Given the scale of the network, a 60-minute seeding period was used to establish background traffic before recording results.

Given the inherent stochastic nature of simulation (imposed by random seeds), multiple simulation runs using different seed numbers were required for each scenario and the reported model results were averaged across runs. Ten simulation runs were completed, which is typically sufficient to obtain an appropriate level of confidence in the results.

The model calibration process finished with a detailed review of model parameters and thorough consideration of adjustments necessary to improve the model's ability to replicate field conditions. This step resulted in two key changes to the freeway driving behavior as compared to the model received from MoDOT: zipper merge was enabled, and the headway time (CC1 parameter) was increased (from 1.09 seconds to 1.29 seconds, increasing the gaps between vehicles). The final calibration process compared model output, including travel times and flow rates, to field measurements of the same attributes. This comparison is summarized below in **Table 2** and **Table 3**.

Table 2. Travel Time Comparison

Corridor	Length (mi)	Average Travel Time (sec)			VISSIM Travel Time (sec)			Travel Time Difference (%)		
		AM	PM	SAT	AM	PM	SAT	AM	PM	SAT
I-70 EB	3.4	177	267	186	188	233	190	6%	-13%	2%
I-70 WB	4.5	382	255	250	377	256	260	-1%	0%	4%

Table 3. Traffic Volume Comparison

Peak Hour	Location	Demand (veh)		Throughput (veh)		Throughput/Demand (veh diff)		Throughput/Demand (% diff)	
		EB	WB	EB	WB	EB	WB	EB	WB
AM	I-70 Between Blue Ridge Blvd and Noland Road	3181	5264	3163	5244	-18	-20	-0.6%	-0.4%
	I-70 Between Noland Road Ramps	2800	4573	2778	4489	-22	-84	-0.8%	-1.8%
	I-70 Between Noland Road and Lee's Summit Road	3205	4867	3169	4644	-36	-223	-1.1%	-4.6%
PM	I-70 Between Blue Ridge Blvd and Noland Road	5217	4054	5451	4049	234	-5	4.5%	-0.1%
	I-70 Between Noland Road Ramps	4601	3323	4782	3320	181	-3	3.9%	-0.1%
	I-70 Between Noland Road and Lee's Summit Road	5242	3832	5403	3833	161	1	3.1%	0.0%
SAT	I-70 Between Blue Ridge Blvd and Noland Road	3912	4436	3923	4403	11	-33	0.3%	-0.7%
	I-70 Between Noland Road Ramps	3253	3746	3247	3722	-6	-24	-0.2%	-0.6%
	I-70 Between Noland Road and Lee's Summit Road	3887	4362	3881	4337	-6	-25	-0.2%	-0.6%

2024 EXISTING CONDITIONS

The 2024 Existing Conditions analysis is intended to reflect traffic operations as they exist today in order to serve as a baseline for comparison to the other scenarios.

2024 EXISTING SYNCHRO TRAFFIC OPERATIONAL ANALYSIS

Operating conditions at the study intersections for the 2024 Existing Conditions are summarized in **Table 4**. The measures of effectiveness reported include LOS, delay, queue, and volume-to-capacity ratio (v/c). The delay is reported in seconds per vehicle. The queue is reported in feet as the 95th percentile queue. The v/c ratio compares vehicle demand to the capacity of an associated lane group. A v/c ratio of 1.0 or higher represents an approach that is at or over capacity.

It should be noted that Synchro results are only shown for the study intersections not included within the VISSIM model, as requested by MoDOT, given the higher confidence level in the VISSIM results.

Per the Synchro analysis, the study intersections generally operate favorably. The US 40 and I-70 interchange operates acceptably with an overall LOS D or better during the Truman HS Dismissal peak hour and the Elementary School Dismissal peak hour.

The Noland Road corridor from 35th Street to 42nd Terrace operates acceptably. The signalized intersections along Noland Road operate with a LOS D or better overall during all reporting peak periods considered. The unsignalized intersections along Noland Road generally operate acceptably. The westbound approach at 37th Street experiences a LOS F during each peak period except for the AM peak period. The queue lengths on this approach are less than three vehicles and the v/c ratio indicates that there is adequate capacity at this intersection. It is not uncommon for unsignalized intersections along arterials to experience long delays, resulting in a LOS F, during peak periods. Similarly, the intersection of Noland Road and E 42nd Street experiences a LOS F for the eastbound approach during the Truman HS Dismissal peak hour and the Elementary School Dismissal peak hour as vehicles wait for a gap in the northbound and southbound traffic along Noland Road to complete their movement. Again, it is not uncommon for unsignalized intersections along arterials to experience long delays during peak periods.

37th Street mainly serves nearby residences and does not have intuitive alternative access to Noland Road. As such, it is recommended that full access be maintained at this intersection despite the failing levels of service. However, consideration could be given towards restricting the eastbound and westbound approaches of 42nd Street to be right-in/right-out only as vehicles are easily able to divert to the signalized intersection of 42nd Terrace, which has available capacity. However, this suggestion was not reflected in the analysis since this restriction would be at the discretion of MoDOT and/or the City of Independence.

Currently, the intersection of Canterbury Place and Lynn Court Drive operates favorably with a LOS A for each movement during the two reporting peak periods (other periods reported via VISSIM), as to be expected given the low existing traffic volumes. The unsignalized intersections along 39th Street also operate favorably with a LOS D or better overall for each movement, with the exception of the northbound approach at Canterbury Place and E 39th Street which does operate at LOS E during the

Elementary School Dismissal peak hour. However, the v/c ratio of 0.56 indicates that there is surplus capacity at this movement.

The signalized intersection of Phelps Road and E 39th Street operates well with an overall LOS C or better during each peak period. The approaches have acceptable v/c ratios indicating adequate capacity. The signalized intersection of Lee's Summit Road and E 39th Street also operates acceptably with an overall LOS D or better for each peak period.

Lastly, the I-70 and Lee's Summit Road interchange also operates acceptably with an overall LOS C or better for both ramp terminals during the two reporting peak hours (other periods reported via VISSIM). The queues do not extend past the interchange into other intersections and the v/c ratios indicate that there is surplus capacity at this interchange.

Overall, it was concluded that there is adequate capacity at the intersections included in the study area.

Table 4. 2024 Existing Operating Conditions (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 5	C (26.8)	D (40.6)	See VISSIM results in Table 5	See VISSIM results in Table 5
Westbound Approach		C (30.3) [#329] <0.82>	C (28.8) [#324] <0.81>		
Northbound Approach		C (25.3) [#326] <0.89>	C (21.1) [#296] <0.88>		
Southbound Approach		C (25.2) [287] <0.66>	D (54.8) [#722] <1.00>		
2: US 40 & I-70 EB Off-Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 5	B (16.0)	C (25.3)	See VISSIM results in Table 5	See VISSIM results in Table 5
Eastbound Approach		B (14.3) [43] <0.65>	E (62.1) [~84] <1.01>		
Northbound Approach		C (21.2) [247] <0.42>	C (31.3) [253] <0.54>		
Southbound Approach		B (12.4) [m140] <0.46>	B (10.3) [193] <0.64>		
3: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
4: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
5: Noland Rd & E 35th St (signalized)					
Overall Intersection	C (24.4)	C (32.4)	D (35.9)	D (36.6)	C (29.2)
Eastbound Approach	D (36.5) [92] <0.56>	D (38.4) [132] <0.79>	D (48.2) [#213] <0.86>	D (49.0) [#213] <0.88>	C (32.5) [102] <0.74>
Westbound Approach	C (35.0) [111] <0.67>	D (54.2) [162] <0.78>	D (44.9) [127] <0.57>	D (42.9) [148] <0.63>	D (40.8) [140] <0.63>
Northbound Approach	B (14.6) [80] <0.33>	C (22.6) [112] <0.66>	C (32.9) [397] <0.58>	C (34.9) [417] <0.58>	C (28.3) [284] <0.72>
Southbound Approach	C (21.4) [195] <0.42>	C (27.6) [298] <0.56>	C (27.6) [328] <0.60>	C (28.9) [340] <0.65>	C (24.1) [311] <0.54>
6: Noland Rd & Noland Ct (signalized)					
Overall Intersection	A (1.9)	A (5.4)	B (12.0)	B (12.3)	A (6.0)
Eastbound Approach	A (0.1) [<25] <0.02>	D (41.3) [40] <0.39>	D (44.0) [58] <0.49>	D (41.8) [35] <0.48>	C (35.0) [33] <0.41>
Westbound Approach	A (0.3) [<25] <0.02>	A (1.9) [<25] <0.16>	A (1.6) [<25] <0.14>	A (1.1) [<25] <0.10>	D (39.3) [<25] <0.14>
Northbound Approach	A (0.3) [<25] <0.21>	A (1.2) [<25] <0.38>	A (0.8) [<25] <0.35>	A (1.1) [<25] <0.33>	A (0.8) [<25] <0.35>
Southbound Approach	A (3.2) [66] <0.31>	A (8.3) [179] <0.47>	B (19.8) [446] <0.54>	B (19.8) [395] <0.53>	A (8.7) [219] <0.47>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
7: Noland Rd & E 37th St (unsignalized)					
Eastbound Approach	C (19.7) [<25] <0.05>	D (31.3) [28] <0.28>	F (61.3) [88] <0.64>	D (31.3) [<25] <0.20>	C (16.4) [<25] <0.12>
Westbound Approach	D (25.1) [28] <0.27>	F (106.0) [88] <0.70>	F (93.6) [63] <0.57>	F (169.7) [70] <0.69>	F (56.7) [38] <0.37>
Northbound Left-Turn	A (9.3) [<25] <0.00>	B (11.5) [<25] <0.01>	B (11.4) [<25] <0.00>	B (12.6) [<25] <0.00>	B (10.5) [<25] <0.01>
Southbound Left-Turn	A (9.2) [<25] <0.03>	B (10.6) [<25] <0.04>	B (10.7) [<25] <0.04>	B (11.6) [<25] <0.05>	B (10.8) [<25] <0.02>
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	See VISSIM results in Table 5	C (27.2)	D (35.6)	See VISSIM results in Table 5	See VISSIM results in Table 5
Eastbound Approach		E (57.0) [#273] <0.83>	F (82.3) [#387] <1.01>		
Westbound Approach		D (42.0) [195] <0.65>	D (44.8) [214] <0.77>		
Northbound Approach		B (14.2) [214] <0.72>	B (14.2) [#221] <0.77>		
Southbound Approach		C (23.0) [313] <0.67>	C (32.8) [465] <0.79>		
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	See VISSIM results in Table 5	A (6.9)	A (9.6)	See VISSIM results in Table 5	See VISSIM results in Table 5
Eastbound Approach		B (18.9) [m64] <0.53>	C (31.3) [m102] <0.70>		
Westbound Approach		D (46.9) [m70] <0.42>	D (49.2) [m74] <0.48>		
Northbound Approach		A (3.6) [m104] <0.46>	A (3.9) [87] <0.48>		
Southbound Approach		A (6.0) [86] <0.52>	A (7.1) [95] <0.58>		
10: Noland Rd & I-70 WB Off Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 5	B (16.2)	B (12.5)	See VISSIM results in Table 5	See VISSIM results in Table 5
Westbound Approach		E (59.2) [#277] <0.99>	D (45.0) [#214] <0.87>		
Northbound Approach		A (6.2) [96] <0.36>	A (8.9) [114] <0.40>		
Southbound Approach		A (5.0) [56] <0.42>	A (5.3) [55] <0.45>		
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 5	C (21.4)	B (19.5)	See VISSIM results in Table 5	See VISSIM results in Table 5
Eastbound Approach		D (35.0) [181] <0.73>	C (29.0) [154] <0.71>		
Northbound Approach		C (22.1) [211] <0.50>	C (23.0) [299] <0.63>		
Southbound Approach		B (12.8) [294] <0.55>	A (9.2) [237] <0.52>		

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
12: Noland Rd & E 42nd St (unsignalized)					
Eastbound Approach	See VISSIM results in Table 5	F (72.8) [43] <0.41>	F (83.6) [38] <0.39>	See VISSIM results in Table 5	See VISSIM results in Table 5
Westbound Approach		C (21.2) [28] <0.27>	D (27.5) [40] <0.37>		
Northbound Left-Turn		A (9.8) [<25] <0.01>	B (11.1) [<25] <0.01>		
Southbound Left-Turn		B (11.7) [<25] <0.15>	B (13.5) [<25] <0.17>		
13: Noland Rd & E 42nd Terrace (signalized)					
Overall Intersection	See VISSIM results in Table 5	C (21.4)	C (28.8)	See VISSIM results in Table 5	See VISSIM results in Table 5
Eastbound Approach		D (50.2) [106] <0.53>	E (59.7) [#226] <0.81>		
Westbound Approach		C (29.3) [131] <0.59>	C (32.8) [158] <0.69>		
Northbound Approach		C (21.4) [349] <0.54>	C (27.9) [396] <0.66>		
Southbound Approach		B (15.1) [324] <0.39>	C (21.3) [408] <0.60>		
14: Canterbury Pl & Lynn Court Dr (unsignalized)					
Eastbound Approach	See VISSIM results in Table 5	A (9.4) [<25] <0.08>	A (9.8) [<25] <0.12>	See VISSIM results in Table 5	See VISSIM results in Table 5
Westbound Approach		A (9.4) [<25] <0.05>	A (9.6) [<25] <0.04>		
Northbound Left-Turn		A (4.4) [<25] <0.01>	A (2.8) [<25] <0.01>		
Southbound Left-Turn		A (0.9) [<25] <0.00>	A (0.3) [<25] <0.00>		
15: Lynn Ct Dr & E 39th St (unsignalized)					
Westbound Left-Turn	A (8.1) [<25] <0.01>	A (8.2) [<25] <0.02>	A (9.1) [<25] <0.03>	A (8.6) [<25] <0.02>	A (8.5) [<25] <0.02>
Northbound Approach	B (12.5) [<25] <0.10>	B (13.5) [<25] <0.15>	C (18.5) [28] <0.28>	C (15.7) [<25] <0.24>	C (15.3) [25] <0.25>
16: Canterbury Pl & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.5) [<25] <0.00>	A (8.1) [<25] <0.01>	A (8.3) [<25] <0.01>	A (8.2) [<25] <0.01>	A (8.1) [<25] <0.01>
Westbound Left-Turn	A (7.8) [<25] <0.02>	A (8.4) [<25] <0.02>	A (9.1) [<25] <0.03>	A (8.7) [<25] <0.02>	A (8.3) [<25] <0.02>
Northbound Approach	B (13.2) [<25] <0.04>	C (20.1) [33] <0.31>	E (36.1) [78] <0.56>	C (22.7) [43] <0.38>	C (17.6) [<25] <0.21>
Southbound Approach	B (13.5) [<25] <0.05>	C (15.9) [<25] <0.10>	C (19.4) [<25] <0.14>	C (15.7) [<25] <0.07>	B (12.7) [<25] <0.05>
17: Hocker Ave & E 39th St (unsignalized)					
Eastbound Left-Turn	A (0.0) [<25] <0.00>	A (8.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>
Westbound Left-Turn	A (7.6) [<25] <0.00>	A (8.2) [<25] <0.00>	A (9.0) [<25] <0.00>	A (8.5) [<25] <0.00>	A (8.2) [<25] <0.00>
Northbound Approach	B (13.8) [<25] <0.05>	C (16.5) [<25] <0.06>	D (29.6) [<25] <0.14>	C (17.8) [<25] <0.07>	C (15.2) [<25] <0.06>
Southbound Approach	A (0.0) [<25] <0.00>	B (10.2) [<25] <0.01>	A (0.0) [<25] <0.00>	C (18.3) [<25] <0.02>	B (10.4) [<25] <0.01>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
18: Phelps Rd & E 39th St (signalized)					
Overall Intersection	B (19.6)	C (22.2)	C (30.2)	C (25.6)	C (21.1)
Eastbound Approach	C (21.9) [105] <0.25>	C (23.9) [218] <0.51>	D (43.3) [#516] <0.88>	C (33.2) [#391] <0.72>	C (26.4) [277] <0.55>
Westbound Approach	C (20.7) [260] <0.44>	C (22.7) [245] <0.44>	C (26.5) [326] <0.65>	C (24.0) [246] <0.46>	B (19.1) [254] <0.43>
Northbound Approach	B (16.2) [77] <0.17>	B (15.7) [78] <0.17>	B (15.6) [97] <0.24>	B (16.3) [96] <0.23>	B (14.5) [75] <0.14>
Southbound Approach	B (18.7) [48] <0.13>	C (24.5) [103] <0.33>	C (25.6) [115] <0.26>	C (22.9) [98] <0.20>	C (22.5) [71] <0.17>
19: Lee's Summit Rd & E 39th St (signalized)					
Overall Intersection	C (23.7)	C (33.0)	D (38.2)	D (37.3)	C (27.6)
Eastbound Approach	B (16.4) [49] <0.34>	C (31.2) [155] <0.32>	D (43.1) [#302] <0.65>	D (40.6) [262] <0.59>	C (32.0) [#153] <0.63>
Westbound Approach	C (21.9) [153] <0.49>	C (29.6) [272] <0.61>	C (33.4) [272] <0.62>	C (32.4) [253] <0.59>	C (23.2) [213] <0.60>
Northbound Approach	C (21.6) [74] <0.63>	C (22.2) [102] <0.67>	C (24.2) [167] <0.71>	C (24.3) [172] <0.72>	C (23.7) [#165] <0.75>
Southbound Approach	C (33.0) [134] <0.69>	D (53.7) [204] <0.72>	E (55.1) [#302] <0.89>	D (54.2) [#251] <0.88>	D (35.2) [#183] <0.72>
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		B (16.8)	B (14.1)		
Westbound Approach	See VISSIM results in Table 5	C (26.5) [125] <0.50>	C (27.6) [118] <0.55>	See VISSIM results in Table 5	See VISSIM results in Table 5
Northbound Approach		B (17.2) [213] <0.61>	B (14.7) [194] <0.55>		
Southbound Approach		B (12.2) [121] <0.26>	A (9.1) [139] <0.39>		
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)					
Overall Intersection		C (20.0)	C (20.5)		
Eastbound Approach	See VISSIM results in Table 5	D (36.6) [143] <0.65>	C (33.0) [156] <0.68>	See VISSIM results in Table 5	See VISSIM results in Table 5
Northbound Approach		B (16.2) [142] <0.25>	B (17.2) [175] <0.32>		
Southbound Approach		B (11.6) [186] <0.33>	B (14.4) [286] <0.58>		

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

m - Volume for 95th percentile queue is metered by upstream signal

2024 EXISTING VISSIM TRAFFIC OPERATIONAL ANALYSIS

As previously mentioned, a VISSIM traffic model was also completed to further evaluate conditions during the weekday AM, weekday PM, and Saturday midday peak hours, and provides performance measures as outputs. The LOS criteria for signalized and unsignalized intersections are the same as Table 1. The measures of effectiveness (MOE) reported include levels of service, delay, average queue length, and maximum observed queue length. The delay is reported in seconds per vehicle and the queue is reported in feet.

The 2024 operating conditions from the VISSIM analysis are provided in **Table 5**. It should be noted that the VISSIM model does not include all of the study area intersections but rather reflects conditions along I-70 at the ramp terminals from US 40/Blue Ridge Boulevard to Lee's Summit Road as well as the intersections along Noland Road from 42nd Terrace to 39th Street. The operating conditions depicted by the VISSIM models confirm the acceptable operating conditions within the area studied and that there is available capacity.

The US 40 and I-70 interchange operates acceptably with an overall LOS C or better during all reporting peak periods. Additionally, each approach operates at a LOS C or better.

The I-70 and Noland Road interchange operates at a LOS B or better during all reporting peak periods considered. The queue lengths do extend past the adjacent ramp terminals, which is not uncommon with a tight diamond configuration. However, the southbound queue length on Noland Road from the I-70 ramp terminals does not extend past Lynn Court Drive, and the northbound queue does not extend past 42nd Terrace, indicating that the interchange does operate acceptably. However, the interchange could operate more efficiently with some minor signal timing and offset adjustments.

The current acceleration lane lengths at the I-70 and Noland Road interchange do not meet AASHTO guidelines. As such, it is recommended that the acceleration lanes be extended to provide 1,560 ft in addition to 300 ft for the taper length to comply with AASHTO guidelines, irrespective of the proposed development. It is recognized that the westbound on-ramp may not be able to provide the full acceleration lane length due to the proximity of the railroad bridge crossing. Therefore, it is recommended that the maximum possible length be provided for this acceleration lane prior to impacting the railroad bridge.

The Noland Road corridor also operates acceptably, similar to the Synchro results. The signalized intersections along Noland Road operate with a LOS C or better overall during all reporting peak periods considered. The unsignalized intersections along Noland Road generally operate acceptably.

It should be noted that the southern Hardee's access drive along Noland Road is only 60 ft away from Lynn Court Drive when measured from centerline to centerline. This short distance poses a safety concern for vehicles exiting the Hardee's as oncoming traffic along Noland Road and Lynn Court Drive may be difficult to see prior to completing their movement. Given that there is a second access drive approximately 145 ft north of this southern drive, as well as additional access onto Lynn Court Drive and Canterbury Place, it is recommended that the southern Hardee's access drive along Noland Road be closed, irrespective of the proposed Wally's development.

Lastly, the Lee's Summit interchange also operates favorably with an overall LOS B or better during all three peak periods modeled.

Table 5. 2024 Existing Operating Conditions (VISSIM)

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (16.0)	C (20.9)	B (16.4)
Westbound Approach	C (20.3) [47] {304}	C (23.7) [54] {324}	B (18.4) [44] {330}
Northbound Approach	B (12.5) [52] {376}	B (16.3) [55] {332}	B (13.8) [48] {315}
Southbound Approach	B (17.1) [27] {212}	C (21.8) [103] {548}	B (16.5) [43] {275}
2: US 40 & I-70 EB Off-Ramp (signalized)			
Overall Intersection	A (7.5)	A (5.8)	A (8.7)
Eastbound Approach	A (8.7) [<25] {82}	B (13.1) [<25] {94}	A (9.4) [<25] {101}
Northbound Approach	A (9.5) [<25] {249}	B (11.1) [<25] {220}	B (14.6) [34] {257}
Southbound Approach	A (1.5) [<25] {89}	A (1.6) [<25] {112}	A (2.4) [<25] {123}
8: Noland Rd & E 39th St (signalized)			
Overall Intersection	C (25.9)	C (28.6)	C (28.9)
Eastbound Approach	C (29.2) [55] {218}	D (51.4) [146] {648}	D (38.0) [93] {351}
Westbound Approach	D (42.1) [137] {455}	D (35.9) [96] {383}	D (38.8) [102] {391}
Northbound Approach	B (14.7) [40] {211}	B (12.0) [79] {313}	B (19.4) [107] {387}
Southbound Approach	C (23.0) [76] {319}	C (33.3) [134] {538}	C (31.1) [124] {503}
9: Noland Rd & Lynn Ct Dr (signalized)			
Overall Intersection	A (9.5)	A (9.5)	A (8.3)
Eastbound Approach	B (13.8) [<25] {107}	C (23.1) [33] {208}	C (22.7) [31] {212}
Westbound Approach	D (36.7) [<25] {142}	D (41.5) [<25] {114}	D (41.9) [<25] {139}
Northbound Approach	A (2.3) [<25] {148}	A (3.7) [27] {227}	A (7.3) [47] {338}
Southbound Approach	B (12.9) [64] {432}	B (12.1) [63] {355}	A (4.9) [26] {201}
10: Noland Rd & I-70 WB Off Ramp (signalized)			
Overall Intersection	B (10.5)	B (11.8)	B (11.9)
Westbound Approach	C (21.8) [<25] {136}	C (24.2) [42] {201}	C (23.2) [48] {234}
Northbound Approach ¹	A (7.4) [<25] {185}	A (6.2) [42] {187}	A (4.8) [<25] {217}
Southbound Approach	A (9.6) [28] {305}	B (12.9) [53] {419}	B (13.2) [65] {423}
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)			
Overall Intersection	B (14.5)	B (18.4)	B (15.1)
Eastbound Approach	C (27.3) [37] {162}	C (32.9) [64] {242}	C (30.4) [62] {283}
Northbound Approach	B (13.8) [<25] {160}	C (22.1) [82] {463}	B (14.6) [42] {350}
Southbound Approach ²	A (8.5) [32] {239}	A (6.0) [32] {228}	A (7.0) [31] {247}
12: Noland Rd & E 42nd St (unsignalized)			
Eastbound Approach	B (13.3) [<25] {45}	D (38.5) [<25] {81}	C (22.6) [<25] {85}

¹ Northbound queues extended to upstream intersection, capping the max queue at ~220ft, actual queues represented by the Northbound Approach at the I-70 EB Off Ramp.

² Southbound queues extended to upstream intersection, capping the max queue at ~240ft, actual queues represented by the Southbound Approach at the I-70 WB Off Ramp.

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
Westbound Approach	A (6.9) [<25] {81}	B (13.2) [<25] {111}	B (10.7) [<25] {105}
Northbound Left-Turn	A (3.8) [<25] {41}	B (10.9) [<25] {145}	B (10.1) [<25] {165}
Southbound Left-Turn	A (5.1) [<25] {146}	A (7.5) [<25] {163}	A (9.6) [<25] {217}
13: Noland Rd & E 42nd Terrace (signalized)			
Overall Intersection	A (6.6)	B (18.8)	B (12.6)
Eastbound Approach	D (39.0) [<25] {127}	D (43.3) [47] {241}	D (40.6) [27] {157}
Westbound Approach	C (24.7) [<25] {106}	C (26.6) [49] {219}	C (25.1) [41] {190}
Northbound Approach	A (5.1) [<25] {159}	B (19.0) [74] {425}	B (13.2) [49] {334}
Southbound Approach	A (2.3) [<25] {141}	B (12.0) [56] {328}	A (6.4) [25] {231}
14: Canterbury Pl & Lynn Court Dr (unsignalized)			
Eastbound Approach	A (5.6) [<25] {43}	A (5.9) [<25] {79}	A (6.2) [<25] {67}
Westbound Approach	A (6.0) [<25] {65}	A (6.4) [<25] {43}	A (6.2) [<25] {70}
Northbound Left-Turn	A (0.0) [<25] {<25}	A (0.3) [<25] {<25}	A (0.2) [<25] {<25}
Southbound Left-Turn	A (0.3) [<25] {<25}	A (0.6) [<25] {<25}	A (0.6) [<25] {<25}
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	A (9.8)	B (12.7)	B (11.6)
Westbound Approach	B (15.4) [<25] {179}	C (20.1) [32] {199}	B (16.6) [27] {192}
Northbound Approach	A (6.0) [<25] {184}	B (12.8) [59] {284}	A (7.7) [26] {234}
Southbound Approach	B (10.9) [<25] {147}	A (10.0) [<25] {168}	B (14.4) [28] {168}
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)			
Overall Intersection	B (14.3)	B (17.5)	B (14.1)
Eastbound Approach	B (16.0) [<25] {112}	C (29.2) [58] {233}	B (17.2) [32] {155}
Northbound Approach	A (8.3) [<25] {117}	B (14.5) [29] {205}	B (12.6) [25] {178}
Southbound Approach	B (19.8) [75] {220}	B (11.7) [60] {292}	B (13.4) [69] {242}

2024 EXISTING CRASH ANALYSIS

Historical crash data was compiled from the MoDOT statewide database for the most current 5-year period. Five years of historical data is considered best practice as it captures a meaningful amount of data that occurred under similar conditions. Shorter time spans can show too little data to draw conclusions while datasets beyond 5 years can misrepresent conditions as roadway conditions and surrounding developments exhibit greater change beyond this time frame. This analysis utilizes crashes between 2019 and 2023 as they are the most recent complete 5 years of data.

The study area for safety analysis includes mainline I-70 and its ramp terminals within the study area as well as Noland Road between 42nd Terrace and 39th Street (same study area as the VISSIM model). The crash data collected was analyzed for trends in year-to-year crash frequency, severity distribution, crash classification, and more to illustrate the existing safety conditions and quantify trends in safety in the study area.

Table 6 below shows the crash severity in the study area by year. As shown, there were 1,082 total crashes in the study area between 2019 and 2023. Of these crashes, 4 resulted in fatalities, 31 resulted in suspected serious injuries, 269 resulted in minor injuries, and 778 resulted in property damage only.

From year to year, the total crashes ranged from a low in 2022 of 201 crashes to a high of 230 crashes in 2019.

Table 6. Crash Severity by Year

Crash Severity	Year					Total
	2019	2020	2021	2022	2023	
Fatal	1	0		1	2	4
Suspected Serious Injury	12	3	5	6	5	31
Minor Injury	59	69	54	42	45	269
Property Damage Only	158	133	163	152	172	778
Grand Total	230	205	222	201	224	1,082

A crash density map of the study area is shown below in **Figure 5** while a map of severe injury and fatal crashes is presented in **Figure 6**. As shown, there is a strong concentration of crash density at the I-70 and Noland Road interchange. Of the 31 total suspected serious injury crashes in the study area, six of them occurred at the ramp terminals at the I-70 and Noland Road interchange. Other areas of frequent severe injury crashes include I-70 to the east and west of the Highway 40, both areas of which experienced six suspected severe injury crashes in the 5-year analysis period.

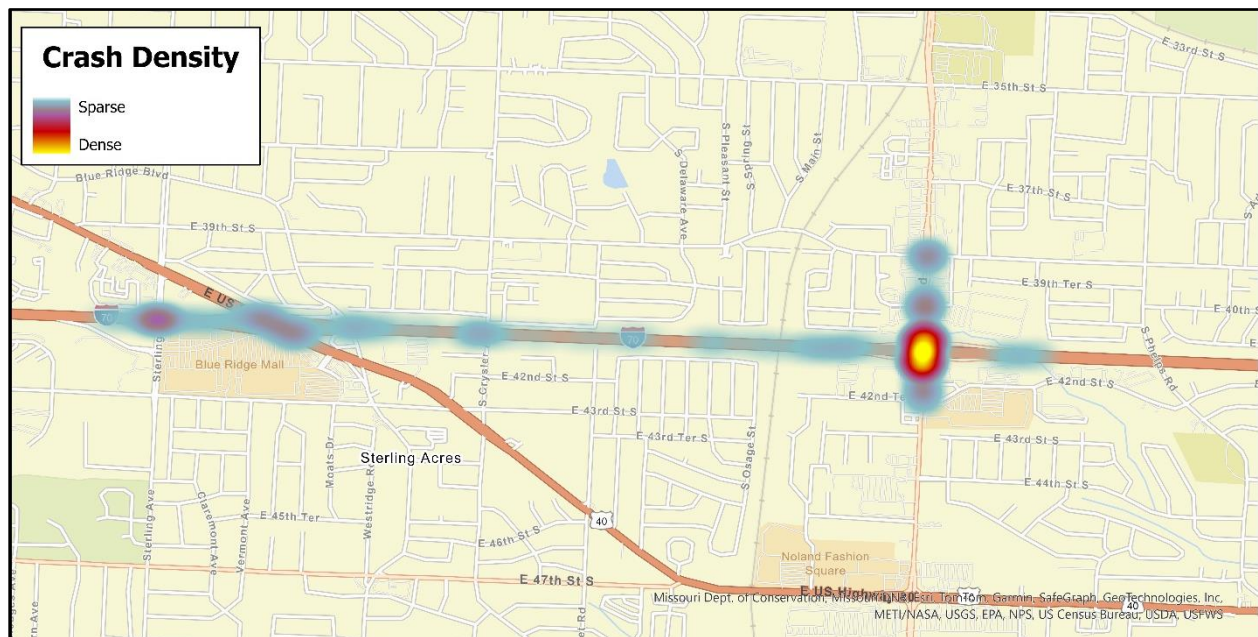


Figure 5. Crash Density within the Study Area

There were four fatal crashes that occurred in the study area from 2019 to 2023. One occurred on eastbound I-70 near the Sterling Avenue bridge, one occurred on eastbound I-70 between Highway 40 and Noland Road, one occurred on eastbound I-70 at the eastbound on-ramp from Noland Road, and one occurred at the intersection of Noland Road and Lynn Court. Three of these four fatal crashes involved pedestrians. The fourth fatality was attributable to a rear end crash. The crash reports for these fatal crashes were acquired in order to gain any further contributing reasons to the conditions of the crashes. 2 of the 3 pedestrian crashes were due to a vehicle striking a pedestrian who was present in the center lanes of I-70. The third occurred at the intersection of Noland Road and Lynn Court where a pedestrian was struck by a vehicle outside of a marked crossing. The rear end fatal crash was due to a driver stopped on I-70 from vehicle issues. The driver was struck while outside the vehicle. The narratives of these crashes suggest the fatal crashes were due to extraneous factors and not indicative of crashes caused by roadway and intersection design.

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Table 7 summarizes the crash classifications by severity in the study area. As shown, the most common crash type in the study area is a rear end crash with 451 total crashes. This accounts for nearly 42% of crashes that occurred in the study area, predominantly occurring along I-70. Rear end crashes are often indicative of congestion on roadways with start and stop traffic and often occur at intersections. In this study area, the rear end crashes are largely concentrated at the merge and diverge points of the on and off ramps on I-70. However, there is also a strong concentration of rear end crashes along the length of Noland Road, indicating traffic congestion is playing into these occurrences. Other common crashes in the study area include Passing, most of which occur on I-70 near on and off ramps, Out of Control crashes which accounted for 101 of the total crashes, and Left Turn and Left Turn, Right Angle which account for 74 and 71 crashes respectively.

Table 7. Crash Classification by Crash Severity

Crash Classification	Severity				Total
	Fatal	Suspected Serious Injury	Minor Injury	Property Damage Only	
Rear End	1	11	114	325	451
Passing	0	6	25	165	196
Out of Control	0	4	41	56	101
Left Turn	0	2	24	48	74
Left Turn, Right Angle	0	2	14	55	71
Head On	0	2	9	24	35
Right Angle	0	1	10	23	34
Changing Lane	0	1	6	20	27
Other	0	0	6	17	23
Right Turn, Right Angle	0	0	2	14	16
Pedestrian	3	2	4	1	10
Sideswipe	0	0	4	6	10
Dual Lefts Collide	0	0	4	2	6
Parking or Parked Car	0	0	1	5	6
Right Turn	0	0	0	5	5
Debris	0	0	0	4	4
Pedalcycle	0	0	4	0	4
U-Turn	0	0	1	3	4
Fixed Object	0	0	0	3	3
Angle	0	0	0	1	1
Deer	0	0	0	1	1
Grand Total	4	31	269	778	1082

Other factors to consider include roadway conditions in the study area at the time of crashes. Higher concentrations of crashes under poor weather conditions can be indicative of subpar physical conditions of the roadway and roadway alignment. Instances of higher crashes in unlight areas can also indicate a need for better nighttime lighting. **Table 8** summarizes the number of crashes under various weather conditions while **Table 9** summarizes the number of crashes under various lighting conditions. As shown, a vast majority of crashes occur under favorable conditions with approximately 8% of crash occurring under rainy weather. Additionally, a vast majority of crashes occur under favorable lighting conditions as 91% of crashes occurred under daylight or street light conditions. It is important to note three of the fatal crashes in the area occurred under dark without street light condition. Two of these three fatal crashes involved pedestrians.

Table 8. Weather Conditions during Crashes

Weather Conditions during Crashes	Crash Severity				Total
	Fatal	Suspected Serious Injury	Minor Injury	Property Damage Only	
Clear	4	20	193	559	776
Cloudy	0	7	47	123	177
Rain	0	2	18	65	85
Snow	0	1	8	20	29
Unknown	0	0	1	5	6
Freezing	0	0	0	4	4
Sleet	0	0	2	1	3
Fog/Mist	0	0	0	1	1
Other	0	1	0	0	1
Grand Total	4	31	269	778	1082

Table 9. Lighting Conditions during Crashes

Lighting Conditions during Crashes	Crash Severity				Total
	Fatal	Suspected Serious Injury	Minor Injury	Property Damage Only	
Daylight	0	18	199	596	813
Dark w/ Street Lights On	1	7	42	119	169
Dark w/ Street Lights Off	3	6	27	62	98
Dark – Unknown	0	0	1	1	2
Grand Total	4	31	269	778	1082

2026 NO-BUILD CONDITIONS

The year 2026 was selected as the project's construction year. The 2026 No-Build conditions analysis is intended to reflect conditions within the study area while accounting for a 2-year increase in "background" traffic. No modifications were made to the lane configurations.

In order to evaluate traffic conditions through the year 2026, it was necessary to forecast the anticipated growth within the study area based on a 2-year increase in "background" traffic resulting from increasing population and commercial and employment growth in the City of Independence.

An annual background growth rate of 0.35% for the overall study area as well as the I-70 Corridor was established based on a thorough review of historical traffic data, projections from the Mid-America Regional Council (MARC) Regional Travel Demand Forecast Model, and forecasts from the 'Improve I-70' project. This proposed background growth rate was reviewed and approved by MoDOT and the City of Independence. Using this 0.35% growth rate, the 2024 existing traffic volumes were projected forward to 2026 to develop the 2026 No-Build traffic volumes, which are included in **Appendix B**.

2026 NO-BUILD SYNCHRO TRAFFIC OPERATIONAL ANALYSIS

The 2026 No-Build operating conditions were evaluated using the same methodology as the 2024 Existing Conditions and are summarized in **Table 10**. It should again be noted that Synchro results are only shown for the study intersections not included within the VISSIM model, as requested by MoDOT, given the higher confidence level in the VISSIM results.

As shown, per the Synchro analysis the operational issues and delays observed in the 2024 Existing conditions are anticipated to degrade slightly by 2026 due to growth in background traffic.

The US 40 and I-70 interchange is expected to perform at LOS D or better overall during the Truman HS and Elementary School dismissal peak hours. It should be noted that the southbound approach at the westbound ramps and the eastbound approach at the eastbound ramps are expected to be over capacity during the Elementary School dismissal peak hour.

The Noland Road corridor (35th Street to 42nd Terrace) is also expected to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. The westbound approach at 37th Street is expected to operate at a LOS F during all peak periods except for the AM peak period. The eastbound approach at E 42nd Street is expected to experience a LOS F during the Truman HS and Elementary School dismissal. At unsignalized intersections along arterials, LOS F is not uncommon. Both 37th Street and 42nd Street intersections maintain acceptable queue lengths and capacity. As previously stated, consideration could be given towards restricting the eastbound and westbound approaches of 42nd Street to right-in/right-out only as vehicles are able to easily divert to the signalized intersection of 42nd Terrace, which has ample capacity. However, this suggestion was not reflected in the analysis since this restriction would be at the discretion of MoDOT and/or the City of Independence.

Canterbury Place and Lynn Court Drive is expected to operate at LOS A for each approach during the two reporting periods (other periods reported via VISSIM). In fact, most of the approaches at the

unsignalized intersections along E 39th Street would be expected to perform at LOS D or better, with the exception of the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal period, which is expected to operate at a LOS E. However, the v/c ratio at this approach is 0.56, indicating that it has sufficient capacity.

The signalized intersections along 39th Street at Phelps Road and Lee's Summit Road at E 39th Street operate at an overall LOS C and LOS D or better and show adequate capacity.

Lastly, the I-70 and Lee's Summit Road interchange is also expected to continue to operate acceptably with an overall LOS C or better for both ramp terminals during the two reporting peak hours (other periods reported via VISSIM). The queues do not extend past the interchange into other intersections and the v/c ratios indicate that there is surplus capacity at this interchange.

Overall, it was concluded that there is adequate capacity at the intersections included in the study area through the year 2026.

Table 10. 2026 No-Build Operating Conditions (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 11	C (27.1)	D (41.7)	See VISSIM results in Table 11	See VISSIM results in Table 11
Westbound Approach		C (30.7) [#335] <0.83>	C (29.3) [#330] <0.82>		
Northbound Approach		C (25.8) [#330] <0.90>	C (21.8) [#300] <0.89>		
Southbound Approach		C (25.3) [290] <0.66>	E (56.4) [#729] <1.01>		
2: US 40 & I-70 EB Off-Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 11	B (16.0)	C (26.1)	See VISSIM results in Table 11	See VISSIM results in Table 11
Eastbound Approach		B (14.3) [42] <0.66>	E (66.2) [~96] <1.02>		
Northbound Approach		C (21.4) [250] <0.42>	C (31.4) [255] <0.54>		
Southbound Approach		B (12.3) [m140] <0.46>	B (10.3) [195] <0.65>		
3: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
4: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
5: Noland Rd & E 35th St (signalized)					
Overall Intersection	C (24.5)	C (32.6)	D (36.2)	D (36.8)	C (29.3)
Eastbound Approach	D (36.4) [92] <0.56>	D (38.9) [133] <0.80>	D (48.5) [#218] <0.87>	D (49.0) [#214] <0.88>	C (32.6) [103] <0.74>
Westbound Approach	D (35.1) [112] <0.68>	D (54.2) [164] <0.78>	D (44.8) [128] <0.58>	D (42.9) [148] <0.64>	D (40.8) [141] <0.64>
Northbound Approach	B (14.6) [81] <0.33>	C (22.7) [112] <0.66>	C (33.1) [400] <0.58>	D (35.0) [420] <0.59>	C (28.5) [287] <0.72>
Southbound Approach	C (21.4) [196] <0.42>	C (27.8) [301] <0.57>	C (27.9) [331] <0.61>	C (29.1) [343] <0.66>	C (24.2) [314] <0.54>
6: Noland Rd & Noland Ct (signalized)					
Overall Intersection	A (1.9)	A (5.4)	B (12.0)	B (13.0)	A (6.0)
Eastbound Approach	A (0.1) [<25] <0.02>	D (41.3) [40] <0.39>	D (44.0) [58] <0.49>	D (43.4) [39] <0.51>	C (35.0) [33] <0.41>
Westbound Approach	A (0.3) [<25] <0.02>	A (1.9) [<25] <0.16>	A (1.6) [<25] <0.14>	A (1.3) [<25] <0.12>	D (39.3) [<25] <0.14>
Northbound Approach	A (0.3) [<25] <0.21>	A (1.2) [<25] <0.39>	A (0.8) [<25] <0.35>	A (1.2) [<25] <0.37>	A (0.8) [<25] <0.35>
Southbound Approach	A (3.2) [66] <0.32>	A (8.3) [181] <0.48>	B (19.7) [450] <0.54>	C (21.0) [456] <0.60>	A (8.8) [221] <0.48>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
7: Noland Rd & E 37th St (unsignalized)					
Eastbound Approach	C (19.9) [<25] <0.05>	D (32.0) [28] <0.28>	F (63.7) [90] <0.65>	D (32.5) [<25] <0.21>	C (16.5) [<25] <0.12>
Westbound Approach	D (25.4) [28] <0.27>	F (108.3) [88] <0.70>	F (101.8) [68] <0.60>	F (181.9) [73] <0.72>	F (59.0) [40] <0.38>
Northbound Left-Turn	A (9.3) [<25] <0.00>	B (11.5) [<25] <0.01>	B (11.4) [<25] <0.00>	B (12.7) [<25] <0.01>	B (10.5) [<25] <0.01>
Southbound Left-Turn	A (9.2) [<25] <0.03>	B (10.7) [<25] <0.04>	B (10.7) [<25] <0.04>	B (11.7) [<25] <0.05>	B (10.8) [<25] <0.02>
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	See VISSIM results in Table 11	C (27.4)	D (35.9)	See VISSIM results in Table 11	See VISSIM results in Table 11
Eastbound Approach		E (57.4) [#273] <0.83>	F (83.6) [#388] <1.02>		
Westbound Approach		D (42.1) [196] <0.66>	D (44.9) [215] <0.77>		
Northbound Approach		B (14.3) [218] <0.73>	B (14.4) [#223] <0.77>		
Southbound Approach		C (23.3) [321] <0.68>	C (32.9) [468] <0.80>		
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	See VISSIM results in Table 11	A (6.9)	A (9.5)	See VISSIM results in Table 11	See VISSIM results in Table 11
Eastbound Approach		B (18.8) [m63] <0.53>	C (31.2) [m102] <0.70>		
Westbound Approach		D (47.0) [m69] <0.42>	D (49.2) [m74] <0.48>		
Northbound Approach		A (3.6) [m105] <0.47>	A (3.9) [88] <0.49>		
Southbound Approach		A (6.1) [87] <0.53>	A (7.1) [96] <0.59>		
10: Noland Rd & I-70 WB Off Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 11	B (16.5)	B (12.6)	See VISSIM results in Table 11	See VISSIM results in Table 11
Westbound Approach		E (60.7) [#281] <0.99>	D (45.6) [#220] <0.87>		
Northbound Approach		A (6.2) [100] <0.36>	A (8.9) [115] <0.40>		
Southbound Approach		A (5.0) [57] <0.42>	A (5.3) [56] <0.45>		
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 11	C (21.3)	B (19.4)	See VISSIM results in Table 11	See VISSIM results in Table 11
Eastbound Approach		D (35.1) [183] <0.73>	C (29.0) [153] <0.71>		
Northbound Approach		C (21.9) [207] <0.50>	C (22.9) [296] <0.63>		
Southbound Approach		B (12.6) [290] <0.55>	A (9.2) [236] <0.53>		

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
12: Noland Rd & E 42nd St (unsignalized)					
Eastbound Approach	See VISSIM results in Table 11	F (76.6) [43] <0.43>	F (83.6) [38] <0.39>	See VISSIM results in Table 11	See VISSIM results in Table 11
Westbound Approach		C (21.8) [28] <0.28>	D (27.7) [40] <0.37>		
Northbound Left-Turn		A (9.9) [<25] <0.01>	B (11.1) [<25] <0.01>		
Southbound Left-Turn		B (11.8) [<25] <0.15>	B (13.6) [<25] <0.17>		
13: Noland Rd & E 42nd Terrace (signalized)					
Overall Intersection	See VISSIM results in Table 11	C (21.6)	C (28.9)	See VISSIM results in Table 11	See VISSIM results in Table 11
Eastbound Approach		D (50.5) [107] <0.54>	E (60.0) [#227] <0.81>		
Westbound Approach		C (29.3) [132] <0.59>	C (32.9) [159] <0.69>		
Northbound Approach		C (21.8) [355] <0.54>	C (28.2) [402] <0.67>		
Southbound Approach		B (15.2) [327] <0.39>	C (21.3) [410] <0.60>		
14: Canterbury Pl & Lynn Court Dr (unsignalized)					
Eastbound Approach	See VISSIM results in Table 11	A (9.4) [<25] <0.08>	A (9.8) [<25] <0.12>	See VISSIM results in Table 11	See VISSIM results in Table 11
Westbound Approach		A (9.4) [<25] <0.05>	A (9.6) [<25] <0.04>		
Northbound Left-Turn		A (7.3) [<25] <0.01>	A (7.4) [<25] <0.01>		
Southbound Left-Turn		A (7.2) [<25] <0.00>	A (7.3) [<25] <0.00>		
15: Lynn Ct Dr & E 39th St (unsignalized)					
Westbound Left-Turn	A (8.1) [<25] <0.01>	A (8.3) [<25] <0.02>	A (9.2) [<25] <0.03>	A (8.6) [<25] <0.02>	A (8.6) [<25] <0.02>
Northbound Approach	B (12.5) [<25] <0.10>	B (13.5) [<25] <0.15>	C (18.6) [28] <0.28>	C (15.7) [<25] <0.24>	C (15.4) [25] <0.25>
16: Canterbury Pl & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.5) [<25] <0.00>	A (8.1) [<25] <0.01>	A (8.3) [<25] <0.01>	A (8.1) [<25] <0.01>	A (8.2) [<25] <0.01>
Westbound Left-Turn	A (7.8) [<25] <0.02>	A (8.4) [<25] <0.02>	A (9.1) [<25] <0.03>	A (8.7) [<25] <0.02>	A (8.3) [<25] <0.02>
Northbound Approach	B (13.3) [<25] <0.04>	C (20.2) [33] <0.32>	E (36.9) [78] <0.56>	C (23.0) [45] <0.39>	C (17.7) [<25] <0.21>
Southbound Approach	B (13.5) [<25] <0.05>	C (16.0) [<25] <0.10>	C (19.6) [<25] <0.14>	C (15.7) [<25] <0.07>	B (12.7) [<25] <0.05>
17: Hocker Ave & E 39th St (unsignalized)					
Eastbound Left-Turn	A (0.0) [<25] <0.00>	A (8.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>
Westbound Left-Turn	A (7.6) [<25] <0.00>	A (8.3) [<25] <0.00>	A (9.1) [<25] <0.00>	A (8.5) [<25] <0.00>	A (8.2) [<25] <0.00>
Northbound Approach	B (13.9) [<25] <0.05>	C (16.5) [<25] <0.06>	D (30.0) [<25] <0.14>	C (17.9) [<25] <0.07>	C (15.3) [<25] <0.06>
Southbound Approach	A (0.0) [<25] <0.00>	B (10.2) [<25] <0.01>	A (0.0) [<25] <0.00>	C (18.4) [<25] <0.02>	B (10.4) [<25] <0.01>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
18: Phelps Rd & E 39th St (signalized)					
Overall Intersection	B (19.6)	C (22.3)	C (30.4)	C (25.8)	C (21.2)
Eastbound Approach	C (22.0) [106] <0.25>	C (24.0) [218] <0.51>	D (43.9) [#521] <0.88>	C (33.6) [#397] <0.73>	C (26.5) [280] <0.55>
Westbound Approach	C (20.7) [261] <0.44>	C (22.7) [247] <0.45>	C (26.6) [327] <0.65>	C (24.1) [247] <0.47>	B (19.1) [255] <0.44>
Northbound Approach	B (16.3) [78] <0.18>	B (15.9) [78] <0.17>	B (15.7) [98] <0.24>	B (16.4) [97] <0.24>	B (14.5) [76] <0.14>
Southbound Approach	B (18.7) [48] <0.13>	C (24.6) [104] <0.34>	C (25.7) [117] <0.26>	C (23.1) [99] <0.20>	C (22.5) [71] <0.17>
19: Lee's Summit Rd & E 39th St (signalized)					
Overall Intersection	C (23.8)	C (33.1)	D (38.4)	D (37.4)	C (27.7)
Eastbound Approach	B (16.5) [50] <0.35>	C (31.3) [157] <0.32>	D (43.3) [#307] <0.66>	D (40.8) [264] <0.59>	C (32.4) [#155] <0.64>
Westbound Approach	C (21.9) [154] <0.50>	C (29.7) [274] <0.61>	C (33.5) [274] <0.62>	C (32.5) [256] <0.59>	C (23.3) [216] <0.60>
Northbound Approach	C (21.7) [74] <0.64>	C (22.3) [103] <0.68>	C (24.5) [170] <0.71>	C (24.5) [172] <0.72>	C (23.7) [#167] <0.75>
Southbound Approach	C (33.0) [135] <0.69>	D (53.7) [205] <0.73>	E (55.3) [#307] <0.90>	D (54.2) [#253] <0.88>	D (35.2) [#184] <0.73>
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		B (17.0)	B (14.2)		
Westbound Approach	See VISSIM results in Table 11	C (26.6) [126] <0.51>	C (27.9) [120] <0.55>	See VISSIM results in Table 11	See VISSIM results in Table 11
Northbound Approach		B (17.5) [214] <0.62>	B (14.9) [195] <0.55>		
Southbound Approach		B (12.2) [122] <0.26>	A (9.1) [141] <0.40>		
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)					
Overall Intersection		C (20.1)	C (20.6)		
Eastbound Approach	See VISSIM results in Table 11	D (36.6) [144] <0.65>	C (33.2) [157] <0.68>	See VISSIM results in Table 11	See VISSIM results in Table 11
Northbound Approach		B (16.4) [143] <0.26>	B (17.4) [178] <0.32>		
Southbound Approach		B (11.6) [187] <0.34>	B (14.5) [289] <0.58>		

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

m – Volume for 95th percentile queue is metered by upstream signal

2026 NO-BUILD VISSIM TRAFFIC OPERATIONAL ANALYSIS

The 2026 No-Build operating conditions evaluated using VISSIM are summarized in **Table 11**. The operating conditions generally agree with those shown in the 2024 Existing conditions, showing that the roadway network will have available capacity into the year 2026. The LOS criteria for signalized and unsignalized intersections are the same as Table 1. The measures of effectiveness (MOE) reported include levels of service, delay, average queue length, and maximum observed queue length. The delay is reported in seconds per vehicle and the queue is reported in feet.

It should again be noted that the VISSIM model does not include all of the study area intersections but rather reflects conditions along I-70 at the ramp terminals from US 40/Blue Ridge Boulevard to Lee's Summit Road as well as the intersections along Noland Road from 42nd Terrace to 39th Street. The operating conditions depicted by the VISSIM models confirm the acceptable operating conditions within the area studied and that there is available capacity.

The US 40 and I-70 interchange is expected to operate acceptably with an overall LOS C or better during all reporting peak periods. Additionally, each approach is expected to operate at a LOS D or better.

The I-70 and Noland Road interchange is expected to operate at a LOS B or better (with individual approaches all operating at LOS D or better) during all reporting peak periods considered. The queue lengths do extend past the adjacent ramp terminals, which is not uncommon with a tight diamond configuration. However, the southbound queue length on Noland Road from the I-70 ramp terminals does not extend past Lynn Court Drive, and the northbound queue does not extend past 42nd Terrace, indicating that the interchange does operate reasonably. However, the interchange could operate more efficiently with some minor signal timing and offset adjustments.

The Noland Road corridor also operates acceptably, similar to the Synchro results. The signalized intersections along Noland Road operate with a LOS C or better overall during all reporting peak periods considered. The unsignalized intersections along Noland Road generally operate acceptably.

Lastly, the Lee's Summit interchange also operates favorably with an overall LOS B or better during all three peak periods modeled, with all individual approaches operating at a LOS C or better.

Table 11. 2026 No-Build Operating Conditions (VISSIM)

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (13.3)	B (19.1)	B (16.4)
Westbound Approach	B (19.7) [44] {296}	C (21.4) [48] {304}	B (18.3) [49] {377}
Northbound Approach	A (5.9) [<25] {333}	B (10.1) [28] {295}	B (12.6) [45] {298}
Southbound Approach	B (19.5) [32] {213}	C (22.2) [107] {580}	B (17.7) [46] {274}
2: US 40 & I-70 EB Off-Ramp (signalized)			
Overall Intersection	B (15.6)	B (12.0)	B (13.3)
Eastbound Approach	A (8.8) [<25] {86}	B (13.3) [<25] {96}	A (9.6) [<25] {99}
Northbound Approach	B (17.8) [53] {313}	C (30.7) [74] {329}	B (19.0) [46] {256}
Southbound Approach	B (14.2) [25] {191}	A (1.8) [<25] {113}	A (9.6) [33] {239}

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
Northbound Approach	B (17.8) [53] {313}	C (30.7) [74] {329}	B (19.0) [46] {256}
Southbound Approach	B (14.2) [25] {191}	A (1.8) [<25] {113}	A (9.6) [33] {239}
8: Noland Rd & E 39th St (signalized)			
Overall Intersection	C (26.2)	C (28.6)	C (28.9)
Eastbound Approach	C (29.8) [58] {214}	D (52.4) [154] {667}	D (37.8) [94] {349}
Westbound Approach	D (43.0) [136] {446}	D (35.5) [94] {372}	D (38.1) [100] {396}
Northbound Approach	B (14.8) [40] {233}	B (11.8) [78] {302}	B (19.3) [106] {367}
Southbound Approach	C (23.2) [77] {311}	C (33.1) [133] {541}	C (31.8) [127] {504}
9: Noland Rd & Lynn Ct Dr (signalized)			
Overall Intersection	A (9.5)	A (9.5)	A (8.5)
Eastbound Approach	B (13.8) [<25] {107}	C (23.4) [34] {236}	C (23.1) [31] {232}
Westbound Approach	C (34.5) [<25] {127}	D (39.0) [<25] {115}	D (39.1) [<25] {144}
Northbound Approach	A (2.3) [<25] {146}	A (3.8) [27] {233}	A (7.5) [48] {352}
Southbound Approach	B (13.1) [64] {429}	B (12.0) [63] {333}	A (5.0) [26] {226}
10: Noland Rd & I-70 WB Off Ramp (signalized)			
Overall Intersection	B (10.6)	B (12.0)	B (12.4)
Westbound Approach	C (22.6) [25] {153}	C (24.1) [43] {274}	C (22.9) [48] {260}
Northbound Approach ³	A (7.3) [<25] {186}	A (6.5) [43] {181}	A (5.0) [<25] {212}
Southbound Approach	A (9.7) [29] {308}	B (13.1) [54] {412}	B (14.6) [79] {457}
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)			
Overall Intersection	B (14.7)	B (18.5)	B (15.0)
Eastbound Approach	C (27.3) [38] {171}	C (33.8) [66] {252}	C (31.1) [63] {273}
Northbound Approach	B (14.0) [<25] {164}	C (22.1) [83] {469}	B (14.1) [40] {361}
Southbound Approach ⁴	A (8.7) [36] {245}	A (5.9) [32] {236}	A (6.9) [30] {255}
12: Noland Rd & E 42nd St (unsignalized)			
Eastbound Approach	B (13.5) [<25] {44}	E (42.4) [<25] {92}	C (23.1) [<25] {81}
Westbound Approach	A (7.0) [<25] {90}	B (14.0) [<25] {131}	B (10.5) [<25] {94}
Northbound Left-Turn	A (3.4) [<25] {52}	A (6.5) [<25] {171}	A (6.3) [<25] {122}
Southbound Left-Turn	A (3.0) [<25] {86}	A (6.4) [<25] {169}	B (10.1) [<25] {191}
13: Noland Rd & E 42nd Terrace (signalized)			
Overall Intersection	A (6.7)	B (19.1)	B (13.1)
Eastbound Approach	D (37.2) [<25] {124}	D (43.9) [48] {244}	D (40.7) [27] {158}
Westbound Approach	C (23.5) [<25] {98}	C (26.4) [49] {224}	C (25.7) [42] {194}
Northbound Approach	A (5.4) [<25] {157}	B (19.5) [76] {450}	B (14.0) [52] {375}
Southbound Approach	A (2.6) [<25] {145}	B (12.0) [56] {332}	A (6.7) [25] {205}
14: Canterbury Pl & Lynn Court Dr (unsignalized)			
Eastbound Approach	A (5.2) [<25] {46}	A (5.7) [<25] {80}	A (6.0) [<25] {69}
Westbound Approach	A (6.0) [<25] {60}	A (6.4) [<25] {43}	A (6.3) [<25] {70}
Northbound Left-Turn	A (0.0) [<25] {<25}	A (0.2) [<25] {<25}	A (0.4) [<25] {<25}
Southbound Left-Turn	A (0.5) [<25] {<25}	A (0.3) [<25] {<25}	A (0.6) [<25] {<25}
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	A (9.8)	B (12.7)	B (11.9)

³ Northbound queues extended to upstream intersection, capping the max queue at ~220ft, actual queues represented by the Northbound Approach at the I-70 EB Off Ramp.

⁴ Southbound queues extended to upstream intersection, capping the max queue at ~240ft, actual queues represented by the Southbound Approach at the I-70 WB Off Ramp.

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
Westbound Approach	B (15.6) [<25] {162}	B (19.7) [29] {210}	B (17.3) [29] {212}
Northbound Approach	A (6.1) [<25] {172}	B (12.8) [60] {321}	A (7.9) [27] {238}
Southbound Approach	B (10.9) [<25] {162}	B (10.2) [<25] {187}	B (14.5) [29] {184}
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)			
Overall Intersection	B (14.5)	B (17.5)	B (14.3)
Eastbound Approach	B (16.5) [<25] {105}	C (28.9) [57] {224}	B (17.7) [33] {162}
Northbound Approach	A (8.3) [<25] {154}	B (14.6) [30] {225}	B (12.7) [28] {203}
Southbound Approach	C (20.1) [76] {233}	B (11.6) [60] {290}	B (13.5) [70] {274}

2026 NO-BUILD SAFETY MODELING ANALYSIS

HSM crash predictions tools were utilized to understand the predicted number of crashes under future No-Build conditions. This is done to create a baseline for comparison with conditions following development of the proposed Wally's and implementation of the recommended roadway improvements. The Crash Prediction Module (CPM) includes an implementation of the crash prediction methods of the AASTHO First Edition HSM. Predicted crashes reflect the calculated number of crashes that should occur in the project study area based upon aggregated data and models of roadways with similar characteristics and traffic volumes.

The Interchange Safety Analysis Tool enhanced (ISATe) was utilized to perform the HSM calculations for all freeway, ramp, and ramp terminal sections of the existing study network. The HSM spreadsheet for urban arterial analysis was utilized for the remaining non-free roadway segments and intersections along Noland Road. **Table 12** displays the annual predicted number of crashes broken down by roadway facility type in the study area (the associated excel spreadsheets will be provided to the reviewing parties in electronic format).

Table 12. 2026 No-Build Predicted Annual Crashes

Roadway Facility Type	Predicted Annual Crashes
Freeway Segments	94.5
Ramp Segments	4.5
Ramp Terminals	20.4
Arterial Segments	2.3
Arterial Intersections	13.7
Total	135.5

As shown above, the crash prediction models reveal an estimated 135.5 annual crashes occurring in the study area under 2026 No-Build conditions. When compared to historical crashes, the existing roadway network already experiences approximately 216 crashes per year when averaged over the last 5 years. When the predicted annual crash rate is less than the actual annual rate, that is an indication that the existing roadway network within the study area is experiencing a higher crash frequency as compared to

other roadway networks of similar characteristics and volumes. In short, this is an indication of safety concerns.

2046 NO-BUILD CONDITIONS

The year 2046 was selected as the project's design year for purposes of evaluating traffic operations conditions into the future, allowing the City of Independence and MoDOT to strategize future infrastructure needs. The 2046 No-Build conditions analysis is intended to reflect future conditions within the study area while accounting for an increase in "background" traffic. No modifications were made to the lane configurations.

In order to evaluate traffic conditions through the year 2046, it was necessary to forecast the anticipated growth within the study area based on an increase in "background" traffic resulting from increasing population and commercial and employment growth in the City of Independence.

The 2024 existing traffic volumes were grown annually by 0.35% to 2046 in order to produce the 2046 No-Build traffic volumes which are provided in **Appendix C**.

2046 NO-BUILD SYNCHRO TRAFFIC OPERATIONAL ANALYSIS

2046 No-Build operating conditions at the study intersections were evaluated using Synchro 11 and are summarized in **Table 13**. The operational issues and delays observed in the 2026 No-Build operating conditions are anticipated to worsen slightly by 2046 due to background traffic growth.

In the year 2046, with only the background growth in place, the US 40 and I-70 interchange is expected to perform at LOS C or better overall during the Truman HS dismissal peak hour. However, the interchange is expected to degrade to an overall LOS E at the westbound ramps during the Elementary School dismissal peak hour (other periods analyzed via VISSIM). The northbound and southbound approaches at the westbound ramps and the eastbound approach at the eastbound ramps are expected to be over capacity during the Elementary School dismissal peak hour. Improvements could be considered at this interchange to provide additional capacity such as turn lanes (northbound right turn lane at east ramp terminal) or signal timing modifications. However, these improvements would be irrespective of the proposed Wally's as the approaches are over capacity without any additional development traffic in place.

The Noland Road corridor (35th Street to 42nd Terrace) is expected to continue to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. The westbound approach at 37th Street is expected to continue to operate at a LOS F during all peak periods except for the AM peak period, similar to the eastbound approach at E 42nd Street during the Truman HS and Elementary School dismissal. As previously stated, consideration could be given towards restricting the eastbound and westbound approaches of 42nd Street to right turns only as vehicles are able to divert to the signalized intersection of 42nd Terrace, which has available capacity. However, this suggestion was not reflected in the analysis since this restriction would be at the discretion of MoDOT and/or the City of Independence.

Canterbury Place and Lynn Court Drive is expected to operate at LOS A for each approach during the two reporting periods (other periods reported via VISSIM). In fact, most of the approaches at the unsignalized intersections along E 39th Street would be expected to perform at LOS D or better, with the exception of the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal period, which is expected to operate at a LOS F. However, the v/c ratio at this approach is 0.69, indicating that it has sufficient capacity. While it is not uncommon for side-street approaches at unsignalized intersections to experience failing operating conditions during peak periods as they wait for a gap in traffic to complete their movement, consideration could be given towards restricting access at this intersection to alleviate the failing LOS during the Elementary School dismissal peak hour.

The signalized intersections along 39th Street at Phelps Road and Lee's Summit Road at E 39th Street operate at an overall LOS C and LOS D or better and show adequate capacity.

Lastly, the I-70 and Lee's Summit Road interchange is also expected to continue to operate acceptably with an overall LOS B or better for both ramp terminals during the two reporting peak hours (other periods reported via VISSIM) with signal timing improvements assumed in the 20-year horizon scenario. The queues do not extend past the interchange into other intersections and the v/c ratios indicate that there is surplus capacity at this interchange.

Overall, it was concluded that while some intersections are expected to experience a degradation in operating conditions in the year 2046 with the background growth in place, the study area overall would have adequate capacity to accommodate the anticipated traffic volumes with signal timing and potential access management solutions in place. However, additional improvements may be necessary at the US 40 and I-70 interchange independent of the proposed development.

Table 13. 2046 No-Build Operating Conditions (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		C (29.0)	E (59.8)		
Westbound Approach	See VISSIM results in Table 14	C (33.7) [#369] <0.89>	C (30.0) [#342] <0.81>	See VISSIM results in Table 14	See VISSIM results in Table 14
Northbound Approach		C (25.2) [#347] <0.91>	D (48.1) [#334] <1.07>		
Southbound Approach		C (27.8) [325] <0.73>	E (79.6) [#817] <1.08>		
2: US 40 & I-70 EB Off-Ramp (signalized)					
Overall Intersection		B (16.3)	C (24.9)		
Eastbound Approach	See VISSIM results in Table 14	B (14.3) [44] <0.67>	E (71.0) [~123] <1.03>	See VISSIM results in Table 14	See VISSIM results in Table 14
Northbound Approach		C (22.8) [276] <0.47>	D (36.5) [284] <0.66>		
Southbound Approach		B (11.9) [m142] <0.48>	A (4.3) [109] <0.65>		
3: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
4: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
5: Noland Rd & E 35th St (signalized)					
Overall Intersection	C (23.6)	C (32.4)	C (30.7)	D (38.7)	C (30.6)
Eastbound Approach	D (37.2) [98] <0.59>	D (41.9) [142] <0.83>	D (50.8) [#249] <0.88>	D (51.9) [#224] <0.90>	C (33.0) [109] <0.76>
Westbound Approach	D (35.8) [119] <0.71>	E (56.5) [174] <0.82>	D (45.5) [135] <0.60>	D (45.0) [#174] <0.72>	D (42.0) [150] <0.67>
Northbound Approach	A (9.6) [54] <0.36>	B (18.2) [214] <0.72>	B (13.1) [102] <0.60>	D (36.6) [448] <0.64>	C (30.1) [313] <0.78>
Southbound Approach	C (22.2) [214] <0.46>	C (29.1) [330] <0.62>	C (30.0) [363] <0.68>	C (30.8) [377] <0.71>	C (25.4) [343] <0.59>
6: Noland Rd & Noland Ct (signalized)					
Overall Intersection	A (2.4)	A (3.5)	A (4.2)	B (13.3)	A (6.2)
Eastbound Approach	A (0.1) [<25] <0.03>	D (41.6) [42] <0.41>	D (44.9) [62] <0.51>	D (44.5) [42] <0.53>	D (35.5) [35] <0.43>
Westbound Approach	A (0.3) [<25] <0.02>	A (1.9) [<25] <0.16>	A (1.7) [<25] <0.15>	A (1.3) [<25] <0.13>	D (39.0) [<25] <0.13>
Northbound Approach	A (1.4) [<25] <0.23>	A (1.8) [<25] <0.41>	A (2.8) [136] <0.38>	A (1.3) [<25] <0.40>	A (0.8) [<25] <0.38>
Southbound Approach	A (3.3) [71] <0.34>	A (3.7) [106] <0.48>	A (3.2) [86] <0.56>	C (21.5) [502] <0.65>	A (9.2) [245] <0.51>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
7: Noland Rd & E 37th St (unsignalized)					
Eastbound Approach	C (22.1) [<25] <0.06>	E (38.6) [35] <0.34>	F (97.0) [123] <0.81>	E (39.7) [25] <0.27>	C (17.9) [<25] <0.15>
Westbound Approach	D (30.2) [35] <0.34>	F (199.4) [125] <0.98>	F (179.6) [95] <0.83>	F (316.0) [95] <1.01>	F (80.8) [53] <0.49>
Northbound Left-Turn	A (9.5) [<25] <0.00>	B (12.1) [<25] <0.01>	B (11.9) [<25] <0.00>	B (13.4) [<25] <0.01>	B (10.9) [<25] <0.01>
Southbound Left-Turn	A (9.4) [<25] <0.03>	B (11.1) [<25] <0.04>	B (11.2) [<25] <0.05>	B (12.3) [<25] <0.06>	B (11.3) [<25] <0.02>
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	See VISSIM results in Table 14	C (28.6)	D (35.7)	See VISSIM results in Table 14	See VISSIM results in Table 14
Eastbound Approach		E (58.6) [#289] <0.87>	E (60.7) [#362] <0.92>		
Westbound Approach		D (43.8) [210] <0.69>	D (48.7) [#240] <0.84>		
Northbound Approach		B (15.9) [234] <0.84>	C (20.2) [256] <0.89>		
Southbound Approach		C (23.6) [313] <0.72>	C (34.9) [#525] <0.90>		
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	See VISSIM results in Table 14	A (6.5)	A (8.4)	See VISSIM results in Table 14	See VISSIM results in Table 14
Eastbound Approach		C (20.7) [m68] <0.57>	C (32.6) [m#109] <0.71>		
Westbound Approach		D (50.0) [m75] <0.45>	D (51.3) [m80] <0.51>		
Northbound Approach		A (4.0) [m102] <0.50>	A (4.8) [m79] <0.52>		
Southbound Approach		A (4.0) [94] <0.57>	A (2.6) [m52] <0.65>		
10: Noland Rd & I-70 WB Off Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 14	B (18.0)	B (14.0)	See VISSIM results in Table 14	See VISSIM results in Table 14
Westbound Approach		D (53.7) [#326] <0.96>	D (49.5) [#274] <0.90>		
Northbound Approach		B (10.8) [365] <0.42>	A (9.1) [130] <0.43>		
Southbound Approach		A (7.7) [88] <0.48>	A (6.9) [110] <0.49>		
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 14	B (17.7)	B (16.6)	See VISSIM results in Table 14	See VISSIM results in Table 14
Eastbound Approach		D (35.9) [196] <0.77>	C (30.5) [163] <0.73>		
Northbound Approach		B (14.8) [195] <0.54>	B (16.7) [219] <0.69>		
Southbound Approach		B (10.2) [249] <0.59>	A (7.7) [212] <0.57>		

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
12: Noland Rd & E 42nd St (unsignalized)					
Eastbound Approach	See VISSIM results in Table 14	F (120.8) [63] <0.59>	F (140.3) [55] <0.56>	See VISSIM results in Table 14	See VISSIM results in Table 14
Westbound Approach		D (25.1) [35] <0.34>	E (35.4) [55] <0.46>		
Northbound Left-Turn		B (10.1) [<25] <0.01>	B (11.6) [<25] <0.01>		
Southbound Left-Turn		B (12.4) [<25] <0.17>	B (14.7) [<25] <0.20>		
13: Noland Rd & E 42nd Terrace (signalized)					
Overall Intersection	See VISSIM results in Table 14	C (23.3)	C (31.0)	See VISSIM results in Table 14	See VISSIM results in Table 14
Eastbound Approach		D (51.0) [113] <0.56>	E (61.8) [#249] <0.84>		
Westbound Approach		C (33.2) [139] <0.61>	C (34.6) [170] <0.72>		
Northbound Approach		C (24.6) [394] <0.62>	C (31.0) [448] <0.74>		
Southbound Approach		B (15.4) [314] <0.43>	C (22.9) [415] <0.64>		
14: Canterbury Pl & Lynn Court Dr (unsignalized)					
Eastbound Approach	See VISSIM results in Table 14	A (9.5) [<25] <0.09>	A (9.9) [<25] <0.13>	See VISSIM results in Table 14	See VISSIM results in Table 14
Westbound Approach		A (9.5) [<25] <0.05>	A (9.7) [<25] <0.05>		
Northbound Left-Turn		A (7.3) [<25] <0.01>	A (7.4) [<25] <0.01>		
Southbound Left-Turn		A (7.2) [<25] <0.00>	A (7.3) [<25] <0.00>		
15: Lynn Ct Dr & E 39th St (unsignalized)					
Westbound Left-Turn	A (8.2) [<25] <0.01>	A (8.3) [<25] <0.02>	A (9.4) [<25] <0.03>	A (8.8) [<25] <0.02>	A (8.7) [<25] <0.02>
Northbound Approach	B (12.9) [<25] <0.11>	B (14.1) [<25] <0.17>	C (20.4) [35] <0.33>	C (16.8) [28] <0.27>	C (16.5) [30] <0.29>
16: Canterbury Pl & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.6) [<25] <0.00>	A (8.2) [<25] <0.01>	A (8.4) [<25] <0.01>	A (8.2) [<25] <0.01>	A (8.2) [<25] <0.01>
Westbound Left-Turn	A (7.8) [<25] <0.02>	A (8.5) [<25] <0.02>	A (9.3) [<25] <0.04>	A (8.9) [<25] <0.02>	A (8.4) [<25] <0.02>
Northbound Approach	B (13.6) [<25] <0.05>	C (23.1) [43] <0.37>	F (52.3) [110] <0.69>	D (27.0) [55] <0.45>	C (19.5) [<25] <0.25>
Southbound Approach	B (14.1) [<25] <0.05>	C (17.2) [<25] <0.12>	C (21.8) [<25] <0.17>	C (16.6) [<25] <0.08>	B (13.2) [<25] <0.05>
17: Hocker Ave & E 39th St (unsignalized)					
Eastbound Left-Turn	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>
Westbound Left-Turn	A (7.6) [<25] <0.00>	A (8.4) [<25] <0.00>	A (9.2) [<25] <0.00>	A (8.6) [<25] <0.00>	A (8.3) [<25] <0.00>
Northbound Approach	B (14.5) [<25] <0.05>	C (17.9) [<25] <0.07>	D (34.7) [<25] <0.18>	C (19.5) [<25] <0.08>	C (16.4) [<25] <0.07>
Southbound Approach	A (0.0) [<25] <0.00>	B (10.4) [<25] <0.01>	A (0.0) [<25] <0.00>	C (19.9) [<25] <0.02>	B (10.6) [<25] <0.01>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
18: Phelps Rd & E 39th St (signalized)					
Overall Intersection	B (20.0)	C (22.9)	C (34.6)	C (27.0)	C (22.7)
Eastbound Approach	C (22.3) [113] <0.27>	C (24.9) [238] <0.55>	D (53.5) [#584] <0.95>	D (36.1) [#447] <0.78>	C (29.0) [306] <0.61>
Westbound Approach	C (21.2) [284] <0.47>	C (23.3) [268] <0.48>	C (28.3) [361] <0.70>	C (24.8) [268] <0.50>	C (20.6) [277] <0.48>
Northbound Approach	B (16.5) [84] <0.19>	B (16.1) [83] <0.19>	B (16.8) [106] <0.28>	B (16.9) [103] <0.25>	B (14.6) [80] <0.14>
Southbound Approach	B (19.0) [52] <0.14>	C (25.0) [112] <0.36>	C (26.3) [124] <0.28>	C (23.2) [104] <0.21>	C (23.6) [77] <0.19>
19: Lee's Summit Rd & E 39th St (signalized)					
Overall Intersection	C (24.0)	C (33.3)	D (42.1)	D (37.9)	C (29.2)
Eastbound Approach	B (17.5) [53] <0.44>	D (37.3) [181] <0.38>	E (70.5) [#418] <0.95>	D (50.1) [#329] <0.77>	D (35.2) [#182] <0.71>
Westbound Approach	C (22.9) [165] <0.51>	C (27.5) [295] <0.47>	C (30.9) [297] <0.54>	C (30.7) [274] <0.47>	C (24.6) [231] <0.61>
Northbound Approach	C (20.6) [79] <0.68>	C (22.3) [230] <0.69>	C (22.3) [245] <0.78>	C (21.5) [178] <0.77>	C (23.7) [#189] <0.80>
Southbound Approach	C (33.4) [145] <0.71>	D (53.4) [218] <0.74>	D (53.9) [#314] <0.89>	D (54.7) [269] <0.90>	D (38.1) [#204] <0.77>
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		B (10.9)	B (12.1)		
Westbound Approach	See VISSIM results in Table 14	C (25.9) [131] <0.51>	C (31.9) [126] <0.60>	See VISSIM results in Table 14	See VISSIM results in Table 14
Northbound Approach		A (9.9) [121] <0.61>	A (9.8) [149] <0.52>		
Southbound Approach		A (5.7) [131] <0.29>	A (8.0) [m238] <0.45>		
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)					
Overall Intersection		B (19.4)	B (19.9)		
Eastbound Approach	See VISSIM results in Table 14	D (35.9) [152] <0.66>	D (35.5) [166] <0.70>	See VISSIM results in Table 14	See VISSIM results in Table 14
Northbound Approach		B (19.2) [158] <0.31>	C (20.5) [194] <0.39>		
Southbound Approach		A (6.5) [89] <0.31>	A (7.0) [119] <0.53>		

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

m – Volume for 95th percentile queue is metered by upstream signal

2046 NO-BUILD VISSIM TRAFFIC OPERATIONAL ANALYSIS

The 2046 No-Build operating conditions from the VISSIM analysis are provided in **Table 14**. The VISSIM model focuses on I-70 ramp terminals from US 40/Blue Ridge Boulevard to Lee's Summit Road and intersections along Noland Road between 42nd Terrace and 39th Street.

The US 40 and I-70 interchange maintains an overall LOS C or better for all three peak periods analyzed. The I-70 and Noland Road interchange similarly performs at LOS C or better. While some queue lengths extend past the adjacent ramp terminals, which is not uncommon for a tight diamond configuration, it remains within acceptable limits, not extending beyond Lynn Court Drive (southbound) or 42nd Terrace (northbound).

Noland Road continues to perform acceptably, with all signalized intersections operating at LOS D or better, except for the eastbound approach at 39th Street, which experiences LOS E during the PM peak period. The unsignalized intersections along Noland Road generally operate acceptably, with one exception being the eastbound approach at Noland Road and 42nd Street, which will operate at LOS F during the PM peak period.

The Lee's Summit Road interchange also operates efficiently, maintaining LOS C or better during all peak periods.

Overall, the VISSIM analysis shows available capacity at the intersections included in the study area into the year 2046.

Table 14. 2046 No-Build Operating Conditions (VISSIM)

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (13.7)	C (22.0)	B (16.9)
Westbound Approach	C (20.3) [48] {304}	C (21.5) [53] {353}	B (19.0) [55] {387}
Northbound Approach	A (5.7) [<25] {366}	B (14.2) [52] {381}	B (12.4) [49] {329}
Southbound Approach	C (20.6) [36] {236}	C (26.0) [141] {668}	B (18.5) [51] {308}
2: US 40 & I-70 EB Off-Ramp (signalized)			
Overall Intersection	B (16.0)	B (16.5)	B (14.1)
Eastbound Approach	A (8.6) [<25] {88}	B (15.1) [<25] {114}	B (10.0) [<25] {103}
Northbound Approach	B (18.5) [60] {340}	C (32.0) [82] {352}	C (21.2) [55] {290}
Southbound Approach	B (14.1) [28] {209}	A (8.6) [65] {272}	A (9.1) [32] {233}
8: Noland Rd & E 39th St (signalized)			
Overall Intersection	C (27.0)	C (31.8)	C (30.5)
Eastbound Approach	C (30.6) [61] {232}	E (63.2) [203] {728}	D (41.2) [108] {459}
Westbound Approach	D (43.6) [165] {462}	D (35.8) [104] {440}	D (39.6) [115] {427}
Northbound Approach	B (15.2) [44] {225}	B (13.5) [90] {380}	B (19.7) [114] {439}
Southbound Approach	C (24.2) [85] {335}	D (35.4) [154] {568}	C (34.0) [147] {576}
9: Noland Rd & Lynn Ct Dr (signalized)			
Overall Intersection	B (10.9)	B (11.1)	A (10.0)
Eastbound Approach	B (17.3) [<25] {122}	C (24.2) [36] {220}	C (23.9) [35] {231}
Westbound Approach	C (31.8) [<25] {115}	D (38.7) [<25] {108}	D (41.6) [<25] {147}
Northbound Approach	A (2.4) [<25] {139}	A (4.4) [32] {287}	A (9.3) [66] {401}
Southbound Approach	B (15.2) [79] {451}	B (14.9) [83] {404}	A (6.3) [33] {312}

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
10: Noland Rd & I-70 WB Off Ramp (signalized)			
Overall Intersection	B (11.9)	B (13.3)	B (14.8)
Westbound Approach	C (23.0) [<25] {138}	C (25.3) [47] {288}	C (23.8) [51] {255}
Northbound Approach ⁵	A (7.7) [<25] {195}	A (6.8) [48] {194}	A (4.9) [<25] {213}
Southbound Approach	B (12.0) [48] {425}	B (15.3) [75] {507}	B (19.8) [129] {607}
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)			
Overall Intersection	B (15.1)	B (18.5)	B (15.5)
Eastbound Approach	C (27.4) [40] {184}	C (32.6) [63] {244}	C (31.1) [67] {291}
Northbound Approach	B (14.2) [<25] {181}	C (22.8) [98] {472}	B (15.0) [46] {384}
Southbound Approach ⁶	A (9.4) [40] {252}	A (6.2) [35] {226}	A (7.2) [34] {245}
12: Noland Rd & E 42nd St (unsignalized)			
Eastbound Approach	C (16.0) [<25] {53}	F (57.0) [<25] {102}	D (26.6) [<25] {88}
Westbound Approach	A (7.3) [<25] {87}	C (16.2) [<25] {115}	B (11.0) [<25] {107}
Northbound Left-Turn	A (3.9) [<25] {65}	C (15.8) [<25] {210}	B (13.8) [<25] {210}
Southbound Left-Turn	A (3.0) [<25] {87}	A (8.1) [<25] {217}	B (10.9) [<25] {212}
13: Noland Rd & E 42nd Terrace (signalized)			
Overall Intersection	A (7.3)	C (20.5)	B (13.9)
Eastbound Approach	D (39.0) [<25] {125}	D (45.2) [52] {250}	D (39.2) [28] {160}
Westbound Approach	C (25.4) [<25] {109}	C (28.4) [56] {276}	C (25.7) [44] {225}
Northbound Approach	A (5.8) [<25] {170}	C (21.3) [89] {497}	B (15.6) [62] {404}
Southbound Approach	A (3.1) [<25] {142}	B (12.6) [61] {337}	A (7.2) [27] {216}
14: Canterbury Pl & Lynn Court Dr (unsignalized)			
Eastbound Approach	A (5.3) [<25] {46}	A (5.5) [<25] {71}	A (6.0) [<25] {61}
Westbound Approach	A (6.0) [<25] {58}	A (6.4) [<25] {45}	A (6.4) [<25] {78}
Northbound Left-Turn	A (0.0) [<25] {<25}	A (0.2) [<25] {<25}	A (0.2) [<25] {<25}
Southbound Left-Turn	A (0.4) [<25] {<25}	A (0.4) [<25] {<25}	A (0.6) [<25] {<25}
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (10.5)	B (13.2)	B (12.2)
Westbound Approach	B (18.9) [<25] {184}	C (20.6) [33] {209}	B (16.3) [29] {201}
Northbound Approach	A (6.2) [<25] {169}	B (12.9) [64] {328}	A (8.3) [31] {285}
Southbound Approach	B (11.3) [<25] {153}	B (11.0) [<25] {184}	B (15.1) [31] {183}
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)			
Overall Intersection	B (14.7)	B (17.7)	B (14.3)
Eastbound Approach	B (16.5) [<25] {109}	C (29.3) [59] {222}	B (17.7) [35] {170}
Northbound Approach	A (9.1) [<25] {173}	B (15.6) [33] {225}	B (13.3) [32] {246}
Southbound Approach	B (19.6) [78] {235}	B (11.4) [62] {289}	B (12.9) [72] {229}

⁵ Northbound queues extended to upstream intersection, capping the max queue at ~220ft, actual queues represented by the Northbound Approach at the I-70 EB Off Ramp.

⁶ Southbound queues extended to upstream intersection, capping the max queue at ~240ft, actual queues represented by the Southbound Approach at the I-70 WB Off Ramp.

2046 NO-BUILD SAFETY MODELING ANALYSIS

The future 2046 No-Build safety models were created using the same methodology applied to the 2026 No-Build analysis and updated to reflect future 2046 No-Build volumes in the project area. The resulting predicted crashes are shown in **Table 15**, along with a comparison to the 2026 No-Build results.

Table 15. 2046 No-Build Predicted Annual Crashes

Roadway Facility Type	2026 No-Build Annual Crashes	2046 No-Build Annual Crashes
Freeway Segments	94.5	105.7
Ramp Segments	4.5	4.8
Ramp Terminals	20.4	22.6
Arterial Segments	2.3	2.5
Arterial Intersections	13.7	14.9
Total	135.5	150.5

As shown, the number of annual crashes in the 2046 No-Build conditions increases by 15 as compared to the 2026 No-Build results. This is to be expected as the future No-Build scenario has increased volumes due to background growth and therefore a higher vehicle crash exposure rate. The 2046 No-Build conditions do not contain geometric or operational improvements to counteract the increase in traffic volume, thereby resulting in a higher number of crashes.

PROPOSED DEVELOPMENT - WALLY'S INDEPENDENCE

As previously mentioned, the proposed Wally's Travel Center will be located in the City of Independence, Missouri. The development is planned to be located at the intersection of Canterbury Place and Lynn Court Drive, just northeast of the I-70 and Noland Road interchange. Positioned off Noland Road, the development will feature a 54k SF Wally's Travel Center with 84 fueling stations. The existing Northern Tool & Equipment Store on the site will be demolished to make way for the new facility. Primary access to the site will be from Noland Road, directly across from Lynn Court Drive, with secondary access available via Canterbury Place, which connects to E 39th Street.

TRIP GENERATION

In forecasting the proposed use's impacts upon traffic conditions, it was necessary to identify the site's trip generation potential, as any impacts to the surrounding road system would be tied to the net increase in trip generation.

Initially, the Trip Generation Manual, 11th Edition, published by the Institute of Transportation Engineers (ITE), was consulted as a reference to forecast the trip generation of the proposed Wally's. LUC 945: Convenience Store/Gas Station would be the most applicable land use for Wally's. However, the size of Wally's, in terms of square footage and vehicle fueling positions (VFP), is well beyond the data range provided for within the ITE data and the intended use of the proposed Wally's does not match the description for the land uses provided in the Trip Generation Manual. Therefore, as agreed upon with MoDOT and the City of Independence, Wally's-specific data from their existing Fenton, Missouri site was used to calculate the trip generation. The Fenton store was selected since it is located within a suburban community (Fenton) within a larger metropolitan area (St. Louis), similar to the proposed site in Independence relative to the Kansas City area.

Trip generation rates for the Wally's Fenton site were calculated based upon the number of vehicle fueling positions (72 VFP). To aid in this analysis, traffic counts during the study peak periods were collected at the existing Fenton site. The trip generation rates for the Fenton Wally's site were determined by comparing the existing hourly traffic volumes at the Fenton Wally's Site to the number of VFP. **Table 16** shows the trip generation rates with respect to the number of vehicle fueling positions. These rates were used to determine the trip generation potential for the proposed Wally's in Independence.

Table 16. Proposed Wally's Trip Generation Rates

Time Period	Trips per Vehicle Fueling Position		
	In	Out	Total
AM Peak Hour	4.00	3.86	7.86
Truman HS Dismissal Hour	4.03	4.42	8.44
Elementary Dismissal Hour	3.32	3.61	6.93
PM Peak Hour	3.58	3.94	7.53
Saturday Middy Peak Hour	3.69	3.75	7.44

It should be emphasized that not all the trips generated by the proposed development would be new to the transportation network. Rather, a portion of the trips could be attracted to the proposed Wally's as part of an existing trip to another destination. Given the intended nature of Wally's, most of the site's traffic is expected to be existing trips on I-70 that are *diverted* from their route to stop for gas and/or to purchase something from the convenience market on their way to their original destination. For example, a motorist going by on I-70 would exit the interstate to travel to and from the Wally's for services. The trips would not be new to the interstate but would be new trips traveling through the Noland Road interchange.

Studies conducted on the behalf of Buc-ee's (a similar concept land use) concluded that data from eight similar sites within Texas indicate that more than 90% of customers live outside a site's zip code. This data, combined with the proposed Wally's close proximity to I-70, suggests that nearly all site-generated trips for this use can be expected to act as diverted link trips to/from the nearby interstate. Therefore, it was estimated that approximately 90% of the new trips are likely to fall into the above-defined category of diverted trips whereas 10% of the new trips will come from the adjacent road network other than I-70.

The trip generation estimates for the proposed Wally's are shown in **Table 17**. As shown, the proposed Wally's is expected to generate a total of 660, 709, 582, 632, and 625 total trips during the weekday AM, Truman dismissal, Elementary dismissal, PM, and Saturday midday peak hours, respectively.

Table 17. Wally's Independence Trip Generation Estimates

	AM Peak Hour			Truman Peak Hour			Elementary Peak Hour			PM Peak Hour			Sat MD Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Total Site Generated Trips	336	324	660	338	371	709	279	303	582	301	331	632	310	315	625
Diverted Trips	297	297	594	319	319	638	262	262	524	285	285	570	282	282	564
New Trips	39	27	66	19	52	71	17	41	58	16	46	62	28	33	61

DIRECTIONAL DISTRIBUTION

The forecasted trips were assigned into and out of the site based upon the anticipated directional distribution, which was estimated from the existing traffic patterns and anticipated service area. The majority of the site's traffic is expected to be existing trips on I-70 that are diverted from their route to stop for gas and/or to purchase something from the convenience market on their way to their original destination.

This means that vehicles would exit the I-70 ramps onto Noland Road, arrive at the Wally's, then re-enter I-70 to continue along their original route. These trips would be proportional to the existing traffic flows on I-70. It was estimated that all trips from I-70 fall into the above-defined category. The remainder of diverted trips were estimated based on traffic counts on Noland Road at the I-70 interchange.

It was determined that the directional distribution for the new trips would also be proportional to existing traffic flows at major intersections to the north and south of the proposed site. The intersection of 42nd Terrace and Noland Road and the intersection of 39th Street and Noland Road were the intersections used to estimate the travel patterns of the Wally's "new" trips.

Given the convenience nature of the fuel center, which aims to predominantly cater to vehicles traveling along I-70, there is a need to differentiate the directional distribution of the Wally's trips based upon the peak hour considered since the traffic patterns differ significantly based upon the peak hour. The directional distribution estimates for the site-generated traffic are presented in **Table 18** through **Table 22** and illustrated in **Figure 7** through **Figure 11**.

Table 18. Directional Distribution Percentages Applied to Proposed Wally's - Weekday AM

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	32%
I-70 to and from the west	0%	55%
Noland Road to and from the north	42%	7%
Noland Road to and from the south	32%	6%
39 th Street to and from east	13%	0%
39 th Street to and from west	7%	0%
42 nd Terrace to and from east	3%	0%
42 nd Terrace to and from west	3%	0%

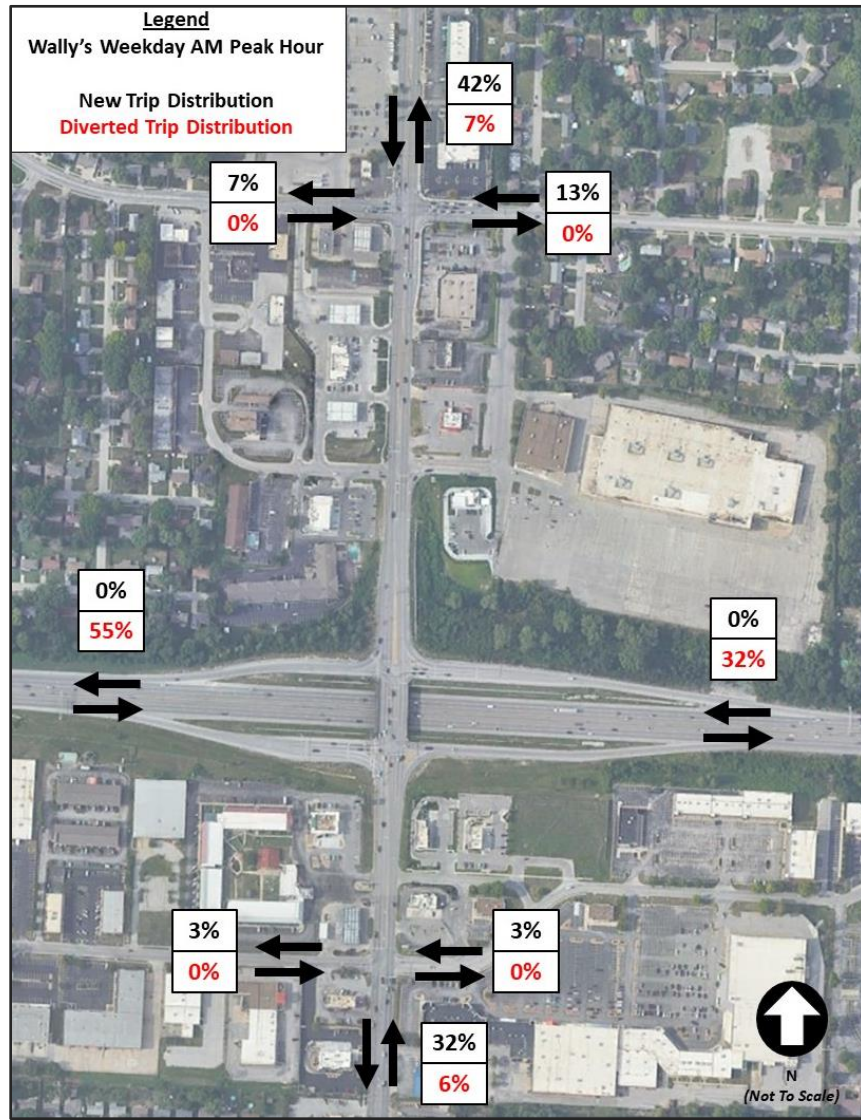


Figure 7. Directional Distribution Percentages Applied to Proposed Wally's - Weekday AM

Table 19. Directional Distribution Percentages Applied to Proposed Wally's – Truman Dismissal

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	37%
I-70 to and from the west	0%	45%
Noland Road to and from the north	40%	9%
Noland Road to and from the south	39%	9%
39 th Street to and from east	6%	0%
39 th Street to and from west	5%	0%
42 nd Terrace to and from east	6%	0%
42 nd Terrace to and from west	4%	0%

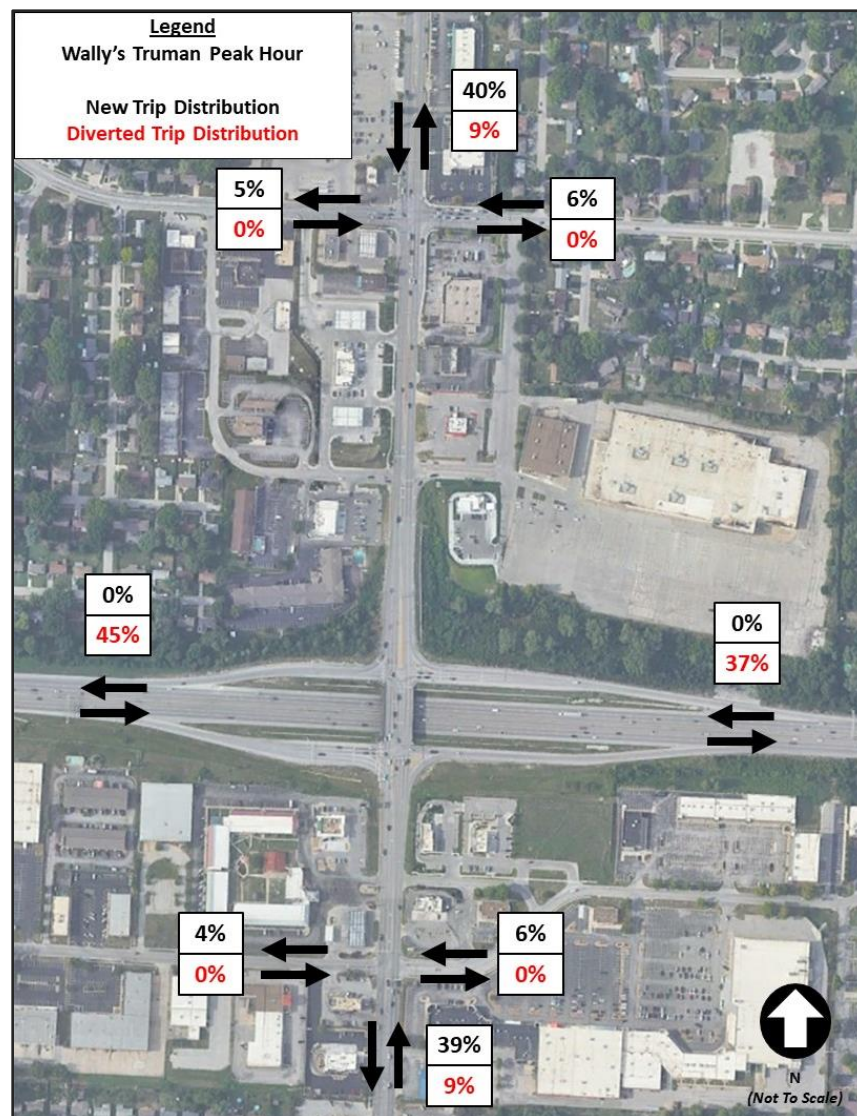


Figure 8. Directional Distribution Percentages Applied to Proposed Wally's – Truman Dismissal

Table 20. Directional Distribution Percentages Applied to Proposed Wally's – Elementary Dismissal

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	37%
I-70 to and from the west	0%	43%
Noland Road to and from the north	38%	10%
Noland Road to and from the south	39%	10%
39 th Street to and from east	6%	0%
39 th Street to and from west	3%	0%
42 nd Terrace to and from east	7%	0%
42 nd Terrace to and from west	7%	0%

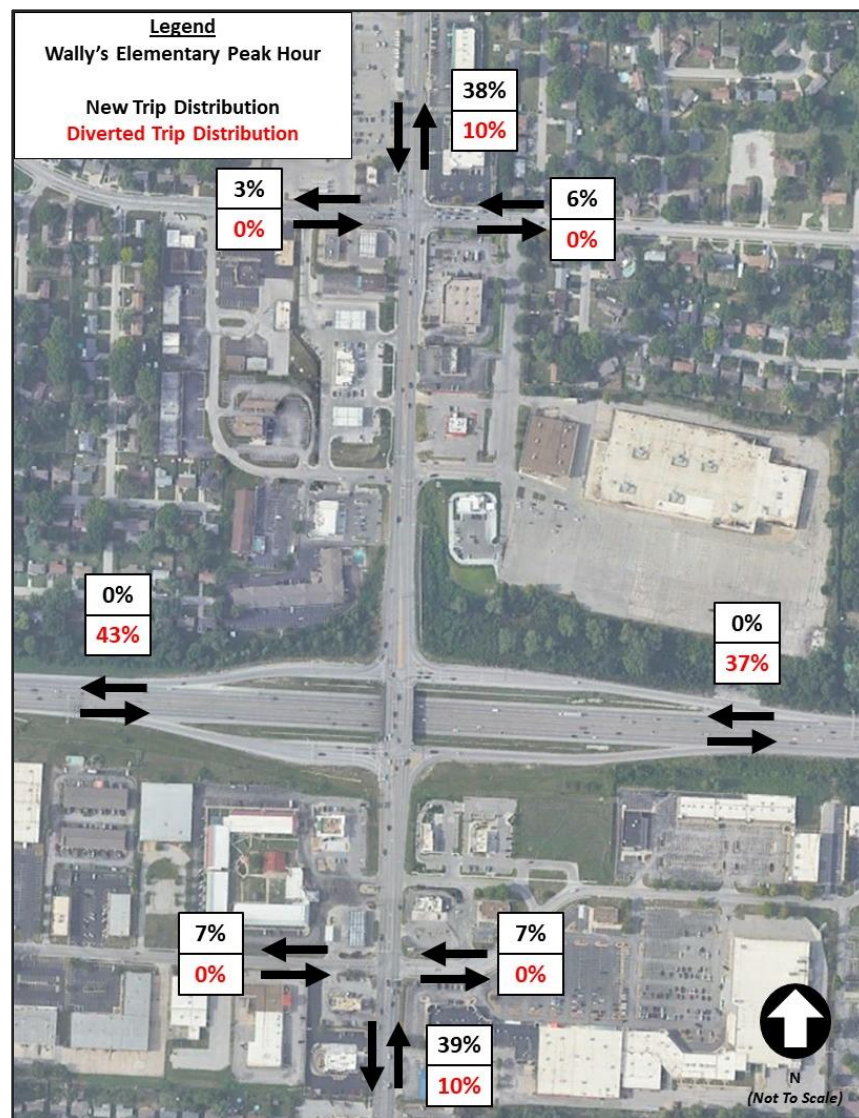


Figure 9. Directional Distribution Percentages Applied to Proposed Wally's – Elementary Dismissal

Table 21. Directional Distribution Percentages Applied to Proposed Wally's – Weekday PM

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	35%
I-70 to and from the west	0%	47%
Noland Road to and from the north	40%	9%
Noland Road to and from the south	38%	9%
39 th Street to and from east	6%	0%
39 th Street to and from west	4%	0%
42 nd Terrace to and from east	7%	0%
42 nd Terrace to and from west	5%	0%

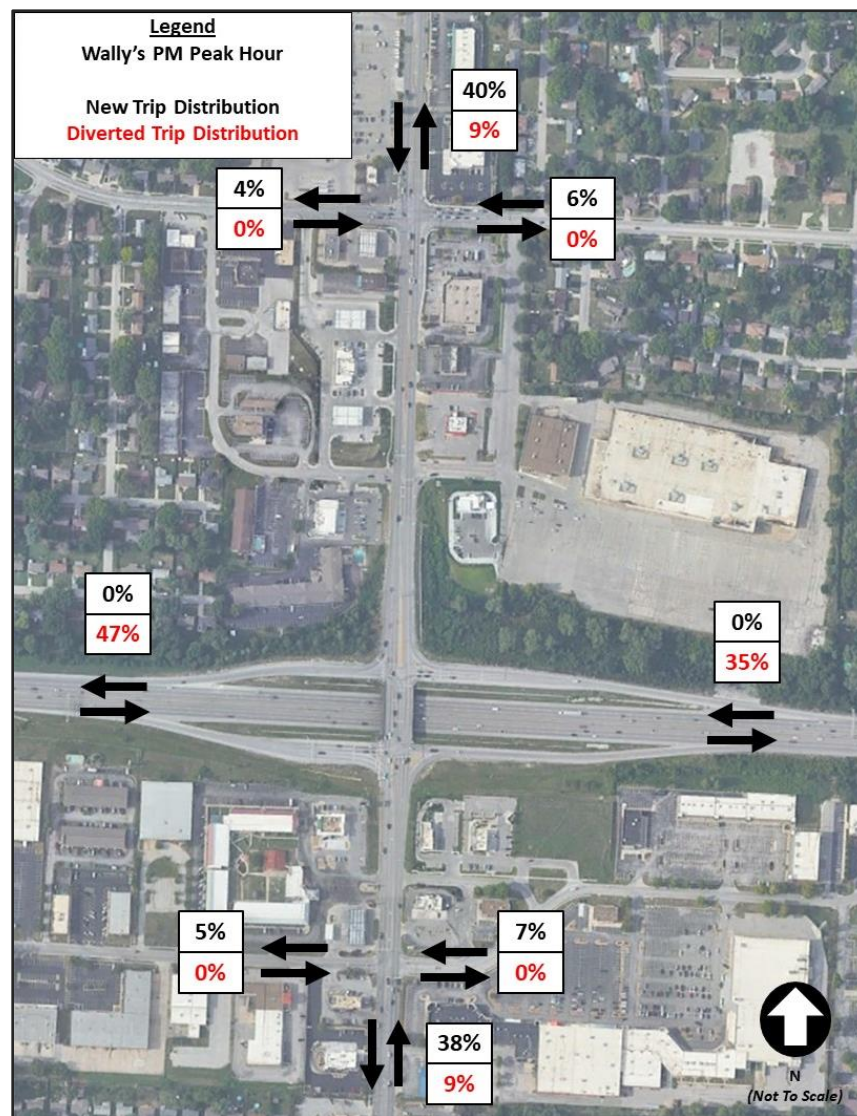
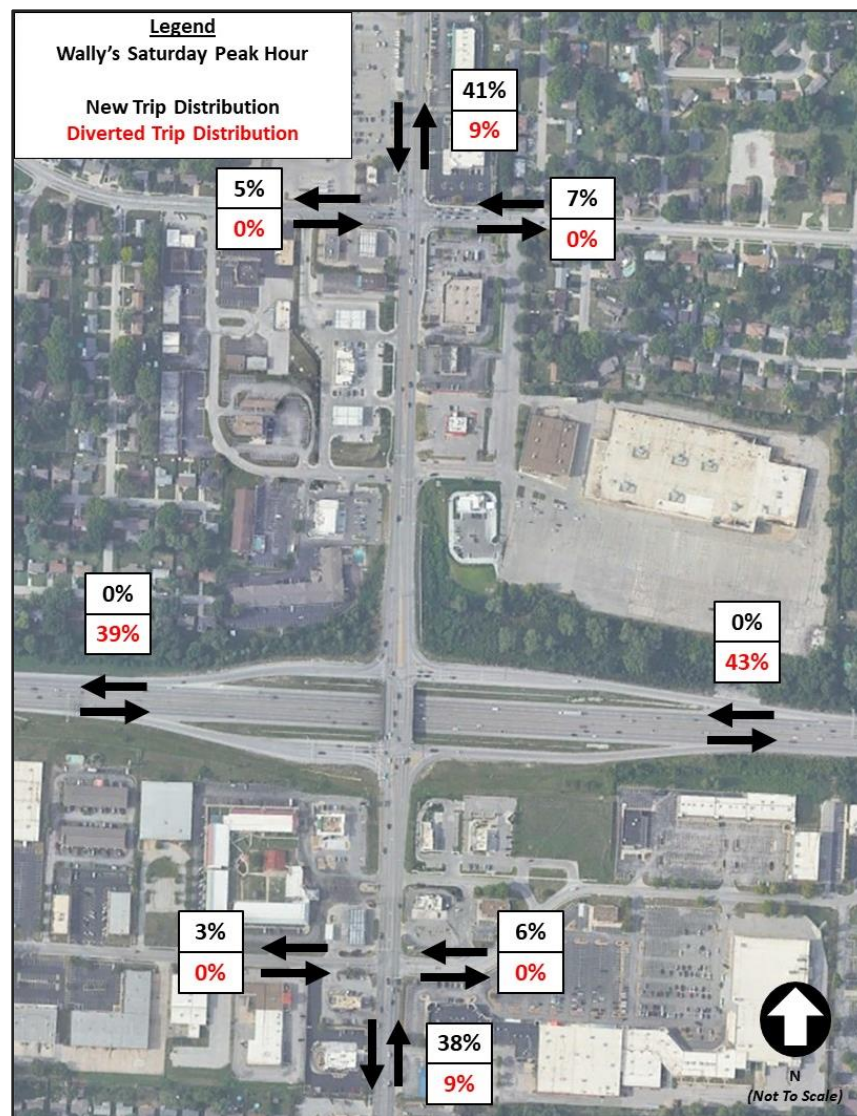
**Figure 10. Directional Distribution Percentages Applied to Proposed Wally's - Weekday PM**

Table 22. Directional Distribution Percentages Applied to Proposed Wally's – Saturday MIDDAY

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	43%
I-70 to and from the west	0%	39%
Noland Road to and from the north	41%	9%
Noland Road to and from the south	38%	9%
39 th Street to and from east	7%	0%
39 th Street to and from west	5%	0%
42 nd Terrace to and from east	6%	0%
42 nd Terrace to and from west	3%	0%

**Figure 11. Directional Distribution Percentages Applied to Proposed Wally's – Saturday MD Peak Hour**

The resulting site generated traffic for the proposed Wally's is shown in **Figure 12** through **Figure 16**.

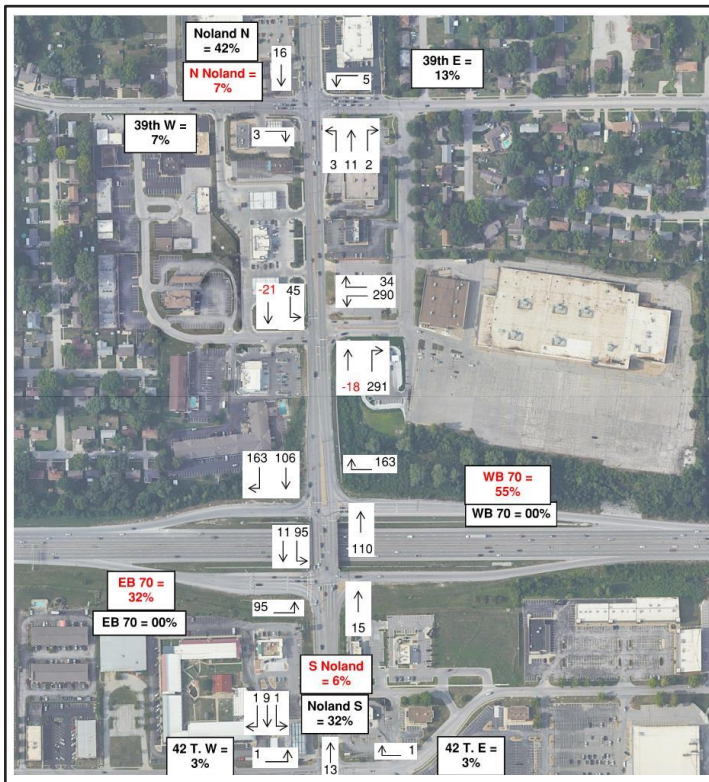


Figure 12. Wally's Site Generated Traffic – AM Peak Hour

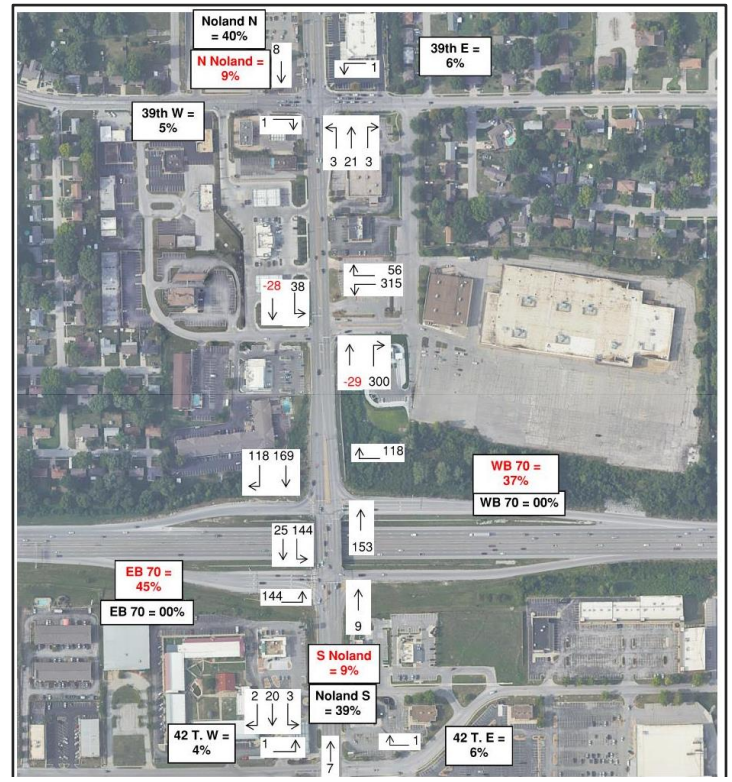


Figure 13. Wally's Site Generated Traffic – Truman Dismissal Peak Hour

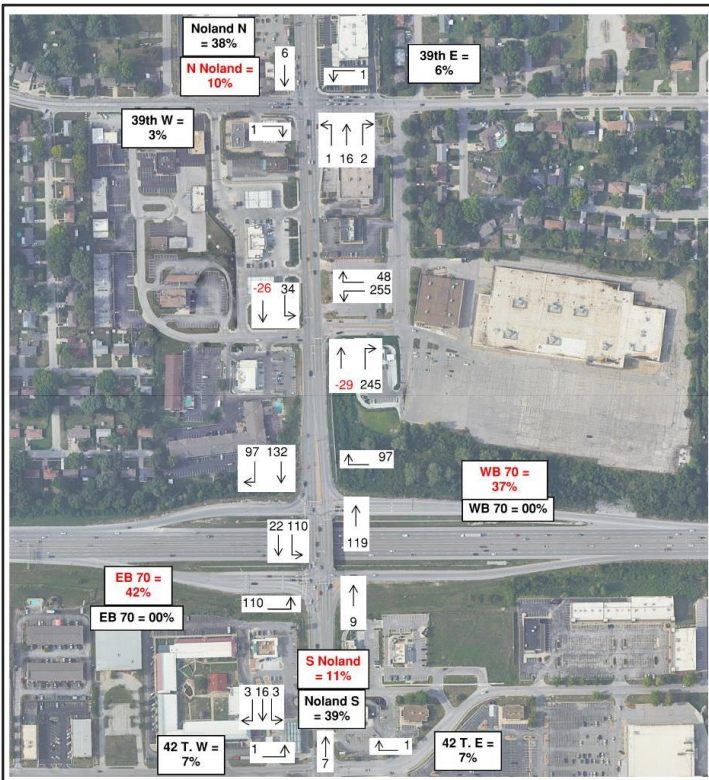


Figure 14. Wally's Site Generated Traffic – Elementary Dismissal Peak Hour

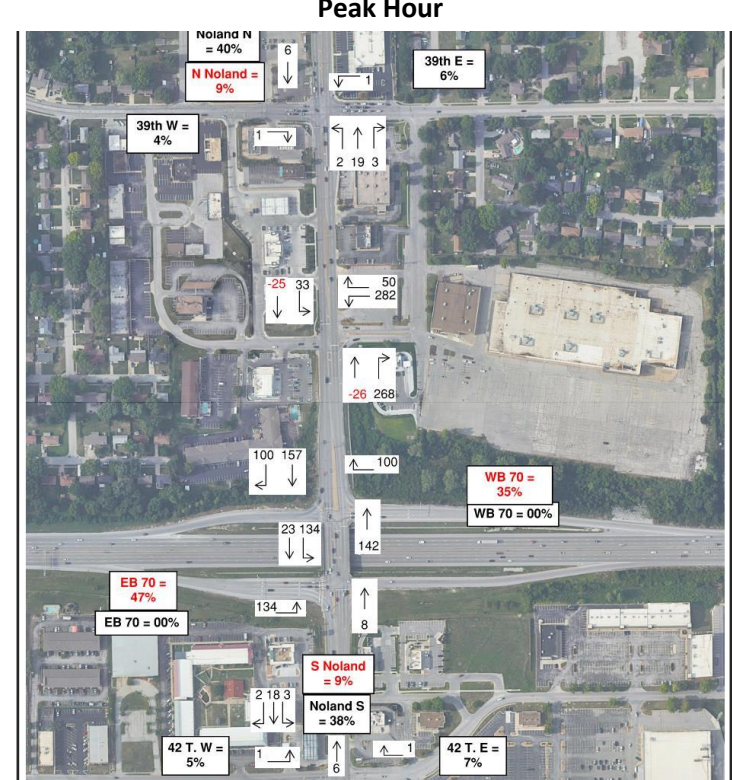


Figure 15. Wally's Site Generated Traffic - PM Peak Hour

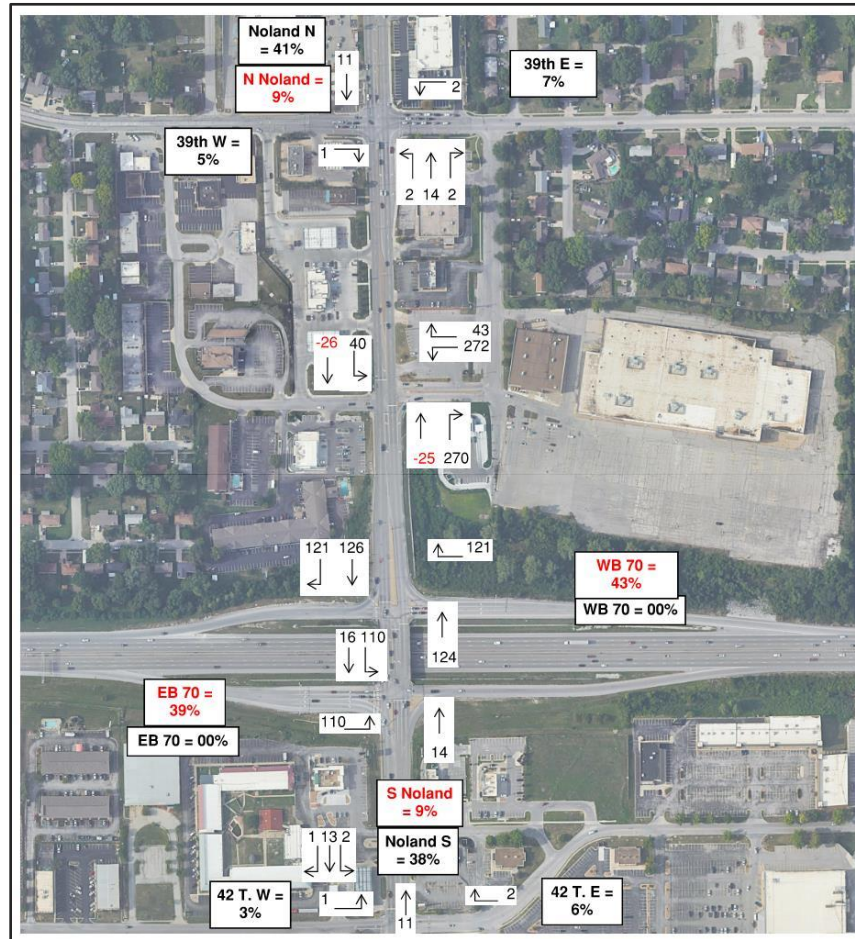


Figure 16. Wally's Site Generated Traffic – Saturday MD Peak Hour

SITE ACCESS AND INTERNAL CIRCULATION

The site access and internal circulation for the proposed development of the Wally's Travel Center was evaluated based on the provided site plan shown in **Figure 17**. The Wally's development will provide a retail space (54.0 KSF) and 84 fueling positions. The proposed site plan proposes access to Wally's primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street. No new access drives are proposed as part of this development.

It is recommended that the intersection of Noland Road and Lynn Court Drive be realigned to improve the existing offset. One left-turn lane and one shared through/right-turn lane is recommended for the eastbound approach. A median along the eastbound approach may be necessary to better align the eastbound and westbound approaches. Two left-turn lanes, one through lane, and one right-turn lane are recommended for the westbound approach. Care should be taken in design to ensure that the eastbound and westbound approaches signal operations can run concurrently rather than split phased, as is the case today. To do so, there should be adequate room for the left-turning movements to run concurrently. The northbound approach should be comprised of a left-turn lane, two through lanes, and

a right-turn lane. The southbound approach should be comprised of a left-turn lane, one through lane, and a shared through/right-turn lane. It is recommended that the striping for the southbound left-turn lane be extended to provide additional storage length; however, no changes to the existing median are recommended.

The internal site access drive of Lynn Court Drive and Canterbury Place should be placed under side-street stop-control where eastbound and westbound traffic along Lynn Court Drive travels freely and northbound and southbound traffic along Canterbury Place is required to stop. One shared left-turn/through lane and one shared through/right-turn lane are recommended for the eastbound and westbound approaches. Per the analysis, a single-lane approach would be adequate along for northbound and southbound traffic. However, additional turn lanes can be provided on the northbound or southbound approaches, if desired.

Consideration was given towards alternative intersection configurations at Lynn Court Drive and Canterbury Place. However, alternatives, such as a roundabout, would not operate as efficiently as the recommended configuration given the close proximity to the signalized intersection at Noland Road and the potential for queues to spill between the roundabout and the signalized intersection. Therefore, a roundabout is not recommended at Lynn Court Drive and Canterbury Place.

It is recommended that the existing unsignalized intersection of 39th Street and Canterbury Place be reconfigured to provide $\frac{3}{4}$ access by restricting the northbound left-turns via installation of a channelized island in the northbound approach. As shown in the Existing and No-Build conditions, the northbound approach would be expected to experience failing operating conditions even without the additional traffic from Wally's. As such, it is recommended that this secondary access drive restrict northbound left-turns to improve operations and safety. Similar to the intersection of Lynn Court Drive and Canterbury Place, alternative intersections, such as a roundabout, were considered. However, given the close proximity to the signalized intersection with Noland Road and the potential for queues to spill back from the signalized intersection, a roundabout is not recommended at 39th Street and Canterbury Place.

The proposed development was evaluated in accordance with Article 14-403 (Gasoline and Fuel Sales) within the Code of Ordinances for the City of Independence, Missouri. Requirements applicable to the proposed development of the Wally's development with respect to this traffic study are summarized below:

- Per Section 14-403-04, all driveways must be located and designed to ensure that they will not adversely affect the safety and efficiency of traffic circulation on adjoining streets. As shown, the proposed Wally's site will have both access points located directly off of Canterbury Place, providing space between the major roadways of Noland Road and E 39th Street. Additionally, as part of the Wally's development, the existing offset intersection of Noland Road and Lynn Court Drive would be realigned, and along with the recommended signal timing improvements and additional turn lanes, would ensure that the safety and efficiency of traffic circulation continues to operate acceptably.

- Per Section 14-403-08, the property containing a gasoline and fuel sales facility shall not be located within 750 ft of a property containing the following uses: Used car lot, Car wash, Motor vehicle repair (limited and general), Motor vehicle rental agency, Vehicle storage/tow lot, Tow lot, (limited), Heavy vehicle dealership, Gasoline and fuel sales. The property line of the proposed site does fall within the 750 ft requirement of a nearby gasoline and fuel sale business (QuikTrip gas station located at 4024 S Noland Road). However, as part of the Wally's site plan submittal, an amendment to the City's Unified Development Ordinance (UDO) was proposed that would remove this requirement for properties within 750 feet of an interstate. If the amendment is approved by the City, then the distance relative to the QuikTrip would no longer be relevant.

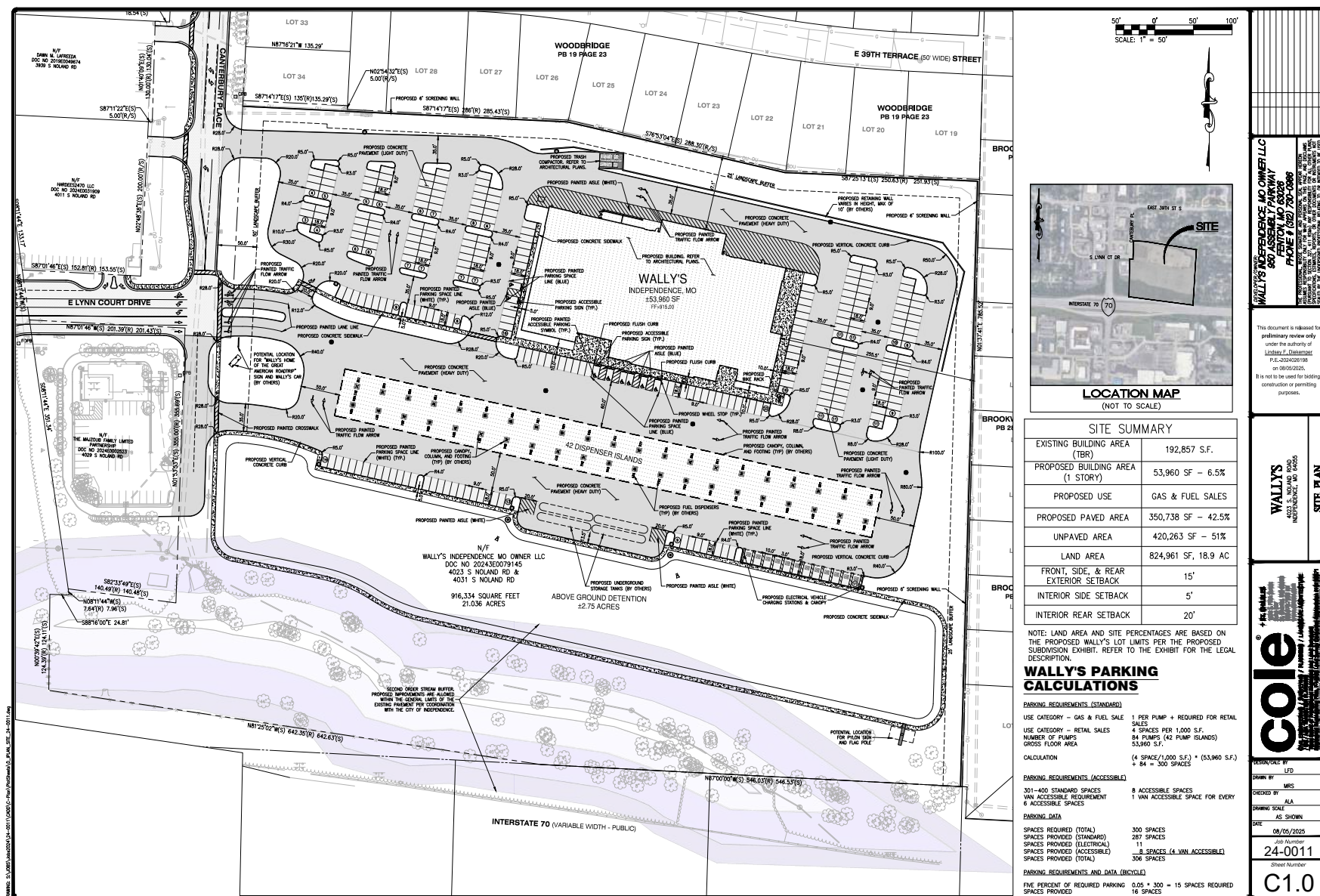


Figure 17. Wally's Independence Missouri Preliminary Site Plan (Provided by Others)

RECOMMENDED IMPROVEMENTS

In order to accommodate the proposed Wally's Travel Center, several roadway improvements would be necessary. While some improvements would be necessary as a result of the traffic generated by the proposed Wally's, several improvements such as extending the existing acceleration lanes along I-70 at the Noland Road interchange and/or aligning the existing offset intersection of Noland Road with Lynn Court Drive would be recommended regardless of the proposed development as a means of improving conditions (from both a traffic operations and safety perspective) along S Noland Road and/or I-70. Ultimately, it is recommended that the following roadway improvements be made prior to the opening of the Wally's Travel Center:

- I-70 EB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Extend the eastbound acceleration lane by a minimum of 145 ft.
- I-70 WB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Maximize the acceleration lane for the existing westbound on ramp to provide approximately 900 ft, inclusive of taper. Note that the proposed taper would end right before the guardrail for the existing railroad overpass. It should be noted that this length would still not meet AASHTO guidelines given the proximity of the railroad overpass. However, this extension would still represent an improvement as compared to existing conditions.
- Noland Road & I-70 EB Ramp Terminal:
 - Extend the existing four-lane section of the eastbound approach to a total of 400 ft measured from the stop-bar.
- Noland Road & I-70 WB Ramp Terminal:
 - Provide an additional westbound right-turn lane to ultimately provide two left turns lanes and two right turn lanes. The dual right-turn lanes should be signalized, allowing right-turns on red after stop. The right-turn lanes should feed into the two existing northbound through lanes.
- Noland Road & Lynn Court Drive:
 - Reconstruct the intersection to correct the existing offset and to allow for the eastbound and westbound approaches to run concurrently. The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide a dedicated left-turn lane and a shared thru/right turn lane.

- Westbound Approach:
 - Provide dual left-turn lanes, one through lane, and one right-turn lane.
 - Northbound Approach:
 - Provide one left-turn lane, two thru lanes, and one channelized right-turn lane.
 - Southbound Approach:
 - Provide one left-turn lane, one thru lane, and one shared through/right-turn lane.
 - Extend the striping for the southbound left-turn lane to increase the storage length, but do not modify the existing median.
 - Provide new traffic signal structures, appurtenances, and pedestrian signalization (with the exception of the SE quadrant).
 - Provide three southbound lanes immediately south of Lynn Court Drive and extending to the I-70 EB ramp terminal.
 - Close the southernmost Hardee's access drive just north of this intersection to reduce conflicts within the signalized intersection.
- Lynn Court Drive & Canterbury Place:
 - Provide a stop-controlled intersection where northbound and southbound traffic is required to stop and eastbound and westbound traffic travels freely.
 - The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - Westbound Approach:
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - Northbound Approach:
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
 - Southbound Approach:
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
- 39th Street & Canterbury Place:
 - Restrict the unsignalized intersection to ¾ access (northbound left turn not permitted) via the construction of a channelized island on the northbound approach.
 - However, should the City of Independence desire, full access at this intersection could remain.

- Noland Road & 42nd Street:
 - Consideration should be given towards restricting left-turns for the eastbound and westbound approaches to improve the efficiency of this unsignalized intersection. The existing left-turning vehicles can divert to the signalized intersection of 42nd Terrace. It is our understanding that future improvements for this intersection are being considered under the City's Capital Improvements Program. It is recommended that future coordination occur to ensure the improvements are included with respect to future corridor signal timings.
- Signal Timing Improvements:

Signal timing improvements along the Noland Road corridor are recommended prior to the Wally's Travel Center being in place. It is anticipated that all cycle lengths, with the exception of Saturday midday, would remain the same. It is recommended that the Saturday midday cycle length be adjusted from 100 seconds to 110 seconds. A full signal timing progression analysis and implementation along the Noland Road corridor is recommended. It should be noted that coordination between Operation Green Light (OGL) will be necessary prior to the implementation of the new signal timings.

2026 FORECASTED CONDITIONS

The year 2026 was selected as the construction year for evaluating near-future traffic conditions based on the anticipated opening of the proposed Wally's. The previously presented recommended improvements were included in the analysis to assess the expected traffic impacts of the Wally's development and ensure that surrounding roadway operations would not be oversaturated. The 2026 Forecasted analysis reflects projected conditions in the study area by incorporating anticipated background traffic growth, trip generation from the proposed Wally's Travel Center, and the recommended traffic improvements.

The 2024 existing traffic volumes were grown by 0.35% through 2026 and combined with trip generation estimates from the proposed Wally's to produce the 2026 Forecasted traffic volumes, as detailed in **Appendix D**.

2026 FORECASTED SYNCHRO TRAFFIC OPERATIONAL ANALYSIS

The evaluation of the 2026 Forecasted Operating Conditions at the study intersections was conducted using Synchro 11, with a summary provided in **Table 23**. It should again be noted that Synchro results are only shown for the study intersections not included within the VISSIM model, as requested by MoDOT, given the higher confidence level in the VISSIM results.

With the Wally's Travel Center and recommended improvements in place, the 2026 Forecasted Conditions are expected to operate acceptably. The US 40 and I-70 interchange would be expected to operate similarly to the 2026 No-Build conditions given that traffic volumes are not anticipated to change at the interchange.

The Noland Road corridor (35th Street to 42nd Terrace) is expected to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. The westbound approach at 37th Street would be expected to operate at a LOS F during all peak periods except for the AM peak period, similar to the No-Build conditions. In addition, the eastbound approach at E 42nd Street would experience a LOS F during the Truman HS and Elementary School dismissal (other periods reported via VISSIM). Despite the LOS F, both 37th Street and 42nd Street intersections maintain acceptable queue lengths and capacity. These operating conditions are similar to the No-Build operating conditions and mitigation measures, such as restricting turning movements at 42nd Street could be pursued should MoDOT and/or the City of Independence desire to do so. It should be noted that the City of Independence is currently planning improvements at 37th Street and 42nd Street as part of their Capital Improvements Plan.

The eastbound approach at Noland Road and E 39th Street would be expected to operate at a LOS D and LOS E during the Truman HS Dismissal and Elementary School Dismissal (other periods reported via VISSIM), respectively, which is improved as compared to the No-Build scenario where the approach operates at a LOS E during both respective peak periods. This improvement is due to signal timing modifications to better accommodate the anticipated increase in traffic flow.

The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place during the Truman High School dismissal peak hour and the Elementary School dismissal peak hour (other periods reported via VISSIM) with an overall LOS C or better for both the eastbound and westbound ramp terminals. The additional westbound right-turn lane at the westbound off ramp adds capacity to the interchange, improving the operations. The southbound queue length at the eastbound ramps would be expected to extend past the westbound ramp terminal. However, that is not uncommon in tight diamond interchanges and that condition exists today. The queue length would not be expected to extend past Lynn Court Drive. However, the max queue length would impact Lynn Court Drive during peak periods.

The improved intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during both peak periods shown. The average queues would not be expected to extend past nearby intersections and the v/c ratios indicate that there is surplus capacity at this intersection despite the addition of the Wally's traffic. However, it should be noted that during peak periods, the max westbound queue would extend past Canterbury Place periodically.

The stop-controlled intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well during the Truman High School dismissal peak hour and the Elementary School dismissal peak hour (other periods reported via VISSIM) with a LOS C or better for each approach. Vehicular queues would be expected to be minimal at less than one car and the v/c ratios indicate surplus capacity.

Under the 2026 No-Build conditions, the northbound approach with the northbound left-turn restriction in place at Canterbury Place and E 39th Street would be expected to operate at an LOS B or better during all peak periods.

It is our understanding that the City of Independence may prefer for the intersection of Canterbury Place and E 39th Street to remain full access. As such, Lochmueller evaluated both access options. Operating conditions with full access at the intersection rather than the ¾ access are provided in **Table 24**. As shown, the northbound approach would be expected to operate acceptably through all peak periods, with the exception of the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal period which would be expected to operate at a LOS E. However, it is expected that the westbound queue length at Noland Road and 39th Street would extend towards the intersection of Canterbury Place and E 39th Street during all peak hours.

The signalized intersections along E 39th Street at Phelps Road and at Lee's Summit Road would operate at LOS C and LOS D overall or better, respectively, for all approaches and show adequate capacity. The I-70 and Lee's Summit Road interchange would also perform well with LOS C or better and no excessive queuing, which is also observed in the No-Build scenario.

Overall, it can be concluded that with the recommended improvements in place, along with signal timing modifications, the roadway network in the year 2026 will operate acceptably and have adequate capacity to accommodate the additional traffic generated by the proposed Wally's as well as continued growth in background traffic.

Table 23. 2026 Forecasted Operating Conditions (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		C (25.7)	D (41.6)		
Westbound Approach	See VISSIM results in Table 24	C (30.7) [#335] <0.83>	C (29.3) [#330] <0.82>	See VISSIM results in Table 24	See VISSIM results in Table 24
Northbound Approach		C (20.5) [#307] <0.90>	C (21.3) [#300] <0.89>		
Southbound Approach		C (25.3) [290] <0.66>	E (56.4) [#729] <1.01>		
2: US 40 & I-70 EB Off-Ramp (signalized)					
Overall Intersection		B (17.3)	C (26.0)		
Eastbound Approach	See VISSIM results in Table 24	B (14.3) [42] <0.66>	E (66.2) [~96] <1.02>	See VISSIM results in Table 24	See VISSIM results in Table 24
Northbound Approach		C (34.0) [273] <0.62>	C (33.1) [255] <0.58>		
Southbound Approach		A (4.9) [m107] <0.30>	A (9.4) [195] <0.61>		
3: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
4: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
5: Noland Rd & E 35th St (signalized)					
Overall Intersection	C (23.4)	C (31.7)	D (36.3)	C (28.1)	C (29.4)
Eastbound Approach	C (34.4) [88] <0.52>	D (39.2) [133] <0.80>	D (48.5) [#218] <0.87>	D (41.9) [165] <0.81>	C (32.6) [103] <0.74>
Westbound Approach	C (34.2) [108] <0.63>	D (54.2) [164] <0.78>	D (44.8) [128] <0.58>	D (41.1) [150] <0.66>	D (40.8) [141] <0.64>
Northbound Approach	A (6.6) [48] <0.35>	C (20.0) [112] <0.66>	C (33.5) [407] <0.58>	B (12.2) [88] <0.62>	C (28.5) [294] <0.72>
Southbound Approach	C (26.1) [235] <0.49>	C (27.9) [305] <0.58>	C (28.0) [334] <0.61>	C (31.1) [371] <0.68>	C (24.4) [320] <0.55>
6: Noland Rd & Noland Ct (signalized)					
Overall Intersection	A (3.0)	A (5.7)	B (12.0)	A (3.9)	A (7.0)
Eastbound Approach	A (0.1) [<25] <0.02>	D (41.3) [40] <0.39>	D (44.0) [58] <0.49>	D (42.8) [38] <0.51>	C (35.0) [33] <0.41>
Westbound Approach	A (0.3) [<25] <0.02>	A (1.9) [<25] <0.16>	A (1.6) [<25] <0.14>	A (1.3) [<25] <0.12>	D (39.3) [<25] <0.14>
Northbound Approach	A (1.2) [<25] <0.21>	A (1.9) [56] <0.39>	A (0.8) [<25] <0.36>	A (1.4) [<25] <0.38>	A (3.0) [106] <0.36>
Southbound Approach	A (4.5) [66] <0.32>	A (8.3) [182] <0.48>	B (19.9) [453] <0.55>	A (3.8) [116] <0.55>	A (8.8) [225] <0.48>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
7: Noland Rd & E 37th St (unsignalized)					
Eastbound Approach	C (20.4) [<25] <0.05>	D (33.3) [28] <0.29>	F (68.2) [95] <0.67>	D (33.6) [<25] <0.22>	C (16.8) [<25] <0.13>
Westbound Approach	D (26.3) [28] <0.28>	F (124.1) [95] <0.75>	F (106.5) [68] <0.61>	F (203.0) [75] <0.77>	F (60.6) [40] <0.39>
Northbound Left-Turn	A (9.3) [<25] <0.00>	B (11.6) [<25] <0.01>	B (11.4) [<25] <0.00>	B (12.7) [<25] <0.01>	B (10.6) [<25] <0.01>
Southbound Left-Turn	A (9.3) [<25] <0.03>	B (10.8) [<25] <0.04>	B (10.8) [<25] <0.04>	B (11.8) [<25] <0.05>	B (10.9) [<25] <0.02>
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	See VISSIM results in Table 24	C (27.0)	D (35.8)	See VISSIM results in Table 24	See VISSIM results in Table 24
Eastbound Approach		D (50.0) [#264] <0.83>	E (60.0) [#342] <0.90>		
Westbound Approach		D (48.3) [180] <0.70>	D (44.9) [#208] <0.77>		
Northbound Approach		B (15.0) [255] <0.80>	C (21.0) [#282] <0.94>		
Southbound Approach		C (23.5) [286] <0.70>	D (37.6) [#492] <0.85>		
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	See VISSIM results in Table 24	B (15.0)	B (13.8)	See VISSIM results in Table 24	See VISSIM results in Table 24
Eastbound Approach		C (23.4) [m65] <0.66>	C (25.6) [m72] <0.77>		
Westbound Approach		D (44.7) [190] <0.81>	D (40.7) [158] <0.75>		
Northbound Approach		A (7.7) [156] <0.62>	A (7.0) [112] <0.61>		
Southbound Approach		A (8.4) [248] <0.65>	A (7.1) [98] <0.70>		
10: Noland Rd & I-70 WB Off Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 24	B (16.4)	B (13.8)	See VISSIM results in Table 24	See VISSIM results in Table 24
Westbound Approach		D (37.9) [159] <0.82>	C (34.2) [114] <0.77>		
Northbound Approach		A (9.4) [501] <0.44>	A (9.5) [169] <0.42>		
Southbound Approach		B (12.3) [154] <0.54>	B (10.6) [132] <0.53>		
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 24	C (23.3)	C (21.0)	See VISSIM results in Table 24	See VISSIM results in Table 24
Eastbound Approach		D (43.4) [248] <0.84>	C (33.6) [204] <0.81>		
Northbound Approach		C (20.1) [195] <0.59>	C (22.6) [298] <0.67>		
Southbound Approach		B (13.7) [399] <0.77>	B (10.8) [355] <0.75>		

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
12: Noland Rd & E 42nd St (unsignalized)					
Eastbound Approach	See VISSIM results in Table 24	F (84.0) [48] <0.45>	F (94.6) [40] <0.42>	See VISSIM results in Table 24	See VISSIM results in Table 24
Westbound Approach		C (22.4) [30] <0.29>	D (28.6) [43] <0.38>		
Northbound Left-Turn		A (9.9) [<25] <0.01>	B (11.2) [<25] <0.01>		
Southbound Left-Turn		B (11.8) [<25] <0.15>	B (13.7) [<25] <0.17>		
13: Noland Rd & E 42nd Terrace (signalized)					
Overall Intersection	See VISSIM results in Table 24	C (21.6)	C (27.1)	See VISSIM results in Table 24	See VISSIM results in Table 24
Eastbound Approach		D (51.4) [109] <0.55>	E (62.4) [#218] <0.84>		
Westbound Approach		C (29.3) [132] <0.59>	D (36.5) [165] <0.75>		
Northbound Approach		C (21.7) [353] <0.55>	C (26.6) [390] <0.65>		
Southbound Approach		B (15.3) [342] <0.40>	B (16.9) [344] <0.59>		
14: Canterbury Pl & Lynn Court Dr (unsignalized)					
Eastbound Left-Turn	See VISSIM results in Table 24	A (8.4) [<25] <0.03>	A (8.5) [<25] <0.05>	See VISSIM results in Table 24	See VISSIM results in Table 24
Westbound Left-Turn		A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>		
Northbound Approach		C (20.0) [<25] <0.07>	C (21.2) [<25] <0.13>		
Southbound Approach		B (12.3) [<25] <0.17>	B (13.1) [<25] <0.24>		
15: Lynn Ct Dr & E 39th St (unsignalized)					
Westbound Left-Turn	A (8.1) [<25] <0.01>	A (8.3) [<25] <0.02>	A (9.2) [<25] <0.03>	A (8.6) [<25] <0.02>	A (8.6) [<25] <0.02>
Northbound Approach	B (12.6) [<25] <0.10>	B (13.5) [<25] <0.15>	C (18.6) [28] <0.28>	C (15.8) [<25] <0.24>	C (15.4) [25] <0.25>
16: Canterbury Pl & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.5) [<25] <0.00>	A (8.1) [<25] <0.01>	A (8.3) [<25] <0.01>	A (8.1) [<25] <0.01>	A (8.2) [<25] <0.01>
Westbound Left-Turn	A (7.8) [<25] <0.02>	A (8.4) [<25] <0.02>	A (9.1) [<25] <0.03>	A (8.7) [<25] <0.02>	A (8.3) [<25] <0.02>
Northbound Approach	A (9.5) [<25] <0.02>	B (11.4) [<25] <0.09>	B (14.0) [<25] <0.17>	B (12.9) [<25] <0.14>	B (11.0) [<25] <0.06>
Southbound Approach	B (13.6) [<25] <0.05>	C (16.1) [<25] <0.10>	C (19.9) [<25] <0.14>	C (15.8) [<25] <0.07>	B (12.8) [<25] <0.05>
17: Hocker Ave & E 39th St (unsignalized)					
Eastbound Left-Turn	A (0.0) [<25] <0.00>	A (8.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>
Westbound Left-Turn	A (7.6) [<25] <0.00>	A (8.3) [<25] <0.00>	A (9.1) [<25] <0.00>	A (8.5) [<25] <0.00>	A (8.2) [<25] <0.00>
Northbound Approach	B (14.0) [<25] <0.05>	C (16.6) [<25] <0.06>	D (30.1) [<25] <0.14>	C (18.0) [<25] <0.07>	C (15.3) [<25] <0.06>
Southbound Approach	A (0.0) [<25] <0.00>	B (10.2) [<25] <0.01>	A (0.0) [<25] <0.00>	C (18.5) [<25] <0.02>	B (10.4) [<25] <0.01>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
18: Phelps Rd & E 39th St (signalized)					
Overall Intersection	B (19.7)	C (22.4)	C (30.6)	C (25.9)	C (21.2)
Eastbound Approach	C (22.1) [108] <0.26>	C (24.2) [221] <0.52>	D (44.3) [#525] <0.89>	C (33.8) [#401] <0.73>	C (26.6) [281] <0.56>
Westbound Approach	C (20.8) [267] <0.45>	C (22.8) [248] <0.45>	C (26.7) [329] <0.66>	C (24.1) [248] <0.47>	B (19.2) [257] <0.44>
Northbound Approach	B (16.3) [78] <0.18>	B (15.9) [78] <0.17>	B (15.7) [98] <0.24>	B (16.4) [97] <0.24>	B (14.5) [76] <0.14>
Southbound Approach	B (18.7) [48] <0.13>	C (24.6) [104] <0.34>	C (25.7) [117] <0.26>	C (23.1) [99] <0.20>	C (22.5) [71] <0.17>
19: Lee's Summit Rd & E 39th St (signalized)					
Overall Intersection	C (23.8)	C (33.1)	D (38.2)	D (37.0)	C (27.5)
Eastbound Approach	B (16.6) [51] <0.35>	C (31.4) [158] <0.32>	D (43.2) [#310] <0.66>	D (52.5) [#345] <0.78>	C (32.7) [#156] <0.65>
Westbound Approach	C (22.0) [157] <0.50>	C (29.7) [276] <0.61>	C (34.0) [279] <0.62>	C (28.4) [256] <0.43>	C (22.6) [217] <0.60>
Northbound Approach	C (21.7) [74] <0.64>	C (22.3) [103] <0.68>	C (25.2) [170] <0.74>	C (20.6) [208] <0.75>	C (24.6) [#180] <0.76>
Southbound Approach	C (33.0) [135] <0.69>	D (53.7) [205] <0.73>	D (53.3) [#283] <0.85>	D (52.6) [252] <0.84>	C (33.6) [171] <0.71>
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		B (17.0)	B (14.2)		
Westbound Approach	See VISSIM results in Table 24	C (26.6) [126] <0.51>	C (27.9) [120] <0.55>	See VISSIM results in Table 24	See VISSIM results in Table 24
Northbound Approach		B (17.5) [214] <0.62>	B (14.9) [195] <0.55>		
Southbound Approach		B (12.2) [122] <0.26>	A (9.0) [142] <0.40>		
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)					
Overall Intersection		C (20.1)	C (20.6)		
Eastbound Approach	See VISSIM results in Table 24	D (36.6) [144] <0.65>	C (33.2) [157] <0.68>	See VISSIM results in Table 24	See VISSIM results in Table 24
Northbound Approach		B (16.4) [143] <0.26>	B (17.4) [178] <0.32>		
Southbound Approach		B (11.6) [187] <0.34>	B (14.5) [289] <0.58>		

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

m – Volume for 95th percentile queue is metered by upstream signal

Table 24. 2026 Forecasted Operating Conditions (Synchro) – Full Access at Canterbury PI & E 39th St

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	C (22.7)	C (26.5)	C (34.1)	D (37.0)	C (35.0)
Eastbound Approach	C (30.9) [122] <0.57>	D (50.7) [#264] <0.83>	E (60.0) [#342] <0.90>	D (53.1) [#346] <0.88>	D (42.5) [233] <0.77>
Westbound Approach	D (44.9) [215] <0.78>	D (49.2) [#220] <0.76>	D (44.9) [#208] <0.77>	D (48.1) [201] <0.75>	D (50.6) [#212] <0.77>
Northbound Approach	B (12.5) [105] <0.64>	B (12.1) [228] <0.69>	B (15.1) [#219] <0.78>	B (16.3) [333] <0.69>	B (12.1) [#202] <0.69>
Southbound Approach	B (14.3) [55] <0.59>	C (23.5) [286] <0.70>	D (37.6) [#492] <0.85>	D (47.4) [#574] <0.99>	D (49.2) [#553] <0.91>
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	B (16.9)	B (15.1)	B (13.9)	C (30.8)	C (22.1)
Eastbound Approach	B (15.4) [m14] <0.57>	C (23.4) [m66] <0.66>	C (25.4) [m74] <0.77>	D (49.5) [#160] <0.90>	C (22.2) [m64] <0.71>
Westbound Approach	D (42.5) [152] <0.70>	D (48.5) [190] <0.81>	D (45.6) [158] <0.75>	D (45.4) [160] <0.75>	D (46.6) [163] <0.75>
Northbound Approach	B (15.4) [181] <0.68>	A (7.7) [156] <0.62>	A (7.0) [112] <0.61>	C (20.3) [m528] <0.75>	B (17.0) [m427] <0.69>
Southbound Approach	A (9.1) [133] <0.65>	A (8.4) [248] <0.65>	A (7.1) [98] <0.70>	C (34.9) [m315] <0.88>	B (19.4) [m#556] <0.86>
14: Canterbury PI & Lynn Court Dr (unsignalized)					
Eastbound Left-Turn	A (9.0) [<25] <0.01>	A (8.4) [<25] <0.03>	A (8.5) [<25] <0.05>	A (8.8) [<25] <0.07>	A (8.2) [<25] <0.02>
Westbound Left-Turn	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.2) [<25] <0.00>
Northbound Approach	A (0.0) [<25] <0.00>	C (19.3) [<25] <0.07>	C (20.5) [<25] <0.12>	D (26.8) [<25] <0.15>	C (17.5) [<25] <0.03>
Southbound Approach	C (15.0) [<25] <0.14>	B (13.6) [<25] <0.10>	B (13.9) [<25] <0.15>	C (16.1) [<25] <0.10>	B (11.9) [<25] <0.10>
16: Canterbury PI & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.5) [<25] <0.00>	A (8.1) [<25] <0.01>	A (8.3) [<25] <0.01>	A (8.1) [<25] <0.01>	A (8.2) [<25] <0.01>
Westbound Left-Turn	A (7.8) [<25] <0.02>	A (8.4) [<25] <0.02>	A (9.1) [<25] <0.03>	A (8.7) [<25] <0.02>	A (8.3) [<25] <0.02>
Northbound Approach	B (12.7) [<25] <0.05>	C (20.3) [<25] <0.32>	E (38.3) [83] <0.58>	C (23.3) [45] <0.40>	C (17.9) [<25] <0.22>
Southbound Approach	B (13.6) [<25] <0.05>	C (16.2) [<25] <0.10>	C (19.9) [<25] <0.14>	C (15.9) [<25] <0.07>	B (12.8) [<25] <0.05>

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cyclesm – Volume for 95th percentile queue is metered by upstream signal

2026 FORECASTED VISSIM TRAFFIC OPERATIONAL ANALYSIS

The 2026 Forecasted operating conditions at the study intersections were evaluated using VISSIM and are summarized in **Table 25**.

As shown, the forecasted operating conditions generally align with those determined for the 2026 No-Build conditions, demonstrating that the roadway network will have ample capacity in the year 2026 with Wally's development in place assuming the recommended improvements are implemented.

It should again be noted that the VISSIM model does not include all of the study area intersections but rather reflects conditions along I-70 at the ramp terminals from US 40/Blue Ridge Boulevard to Lee's Summit Road as well as the intersections along Noland Road from 42nd Terrace to 39th Street. The operating conditions depicted by the VISSIM models confirm the acceptable operating conditions within the area studied and that there is capacity available.

The US 40 and I-70 interchange is expected to operate acceptably with an overall LOS C or better during all reporting peak periods. Little changes are expected at this interchange when compared to the No-Build scenario as traffic volumes at the interchange are not expected to be impacted by the proposed development.

The I-70 and Noland Road interchange is expected to operate at an overall LOS C or better during all three reporting peak periods considered by VISSIM. Similar to existing and No-Build conditions, the queue lengths do extend past the adjacent ramp terminals. However, the average southbound queue length on Noland Road from the I-70 ramp terminals is not expected to extend past Lynn Court Drive, and the northbound queue is not expected to extend past 42nd Terrace, indicating that the interchange would continue to operate reasonably even with the proposed Wally's in place.

The Noland Road corridor is also expected to operate acceptably, similar to the Synchro results. The signalized intersections along Noland Road would operate with an overall LOS C or better during all three reporting peak periods considered. All unsignalized intersections along Noland Road generally operate acceptably, with improved operations when compared to No-Build conditions due to signal timing efficiencies.

The improved intersection of Noland Road with Lynn Court Drive would be expected to operate at an overall LOS B during all three reporting peak periods analyzed in VISSIM, with each approach operating at a LOS D or better. The internal intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well with a LOS B or better on each approach.

Lastly, the Lee's Summit interchange would also operate favorably with an overall LOS B or better during all three peak periods modeled, with all individual approaches operating at a LOS C or better.

Overall, it can be concluded that with the recommended improvements in place, the study area would be able to adequately accommodate the proposed Wally's development through the year 2026.

Table 25. 2026 Forecasted Operating Conditions (VISSIM)

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (13.1)	C (20.4)	B (16.0)
Westbound Approach	B (19.1) [43] {271}	C (21.6) [50] {313}	B (17.4) [45] {322}
Northbound Approach	A (5.9) [<25] {334}	B (10.3) [28] {295}	B (12.6) [45] {297}
Southbound Approach	B (19.2) [31] {203}	C (24.6) [121] {608}	B (17.4) [45] {281}
2: US 40 & I-70 EB Off-Ramp (signalized)			
Overall Intersection	B (15.6)	B (15.6)	B (13.3)
Eastbound Approach	A (8.5) [<25] {84}	B (14.0) [<25] {111}	A (9.6) [<25] {95}
Northbound Approach	B (17.8) [53] {316}	C (30.7) [74] {329}	B (18.9) [45] {260}
Southbound Approach	B (14.1) [25] {194}	A (8.0) [56] {261}	A (9.7) [33] {240}
8: Noland Rd & E 39th St (signalized)			
Overall Intersection	C (25.1)	C (30.6)	C (28.4)
Eastbound Approach	C (29.1) [59] {197}	D (44.0) [133] {557}	D (36.2) [95] {353}
Westbound Approach	D (38.4) [127] {452}	D (39.7) [102] {371}	D (40.0) [105] {402}
Northbound Approach	B (11.1) [32] {228}	B (16.0) [94] {521}	B (14.3) [88] {397}
Southbound Approach	C (26.2) [84] {363}	D (37.9) [159] {630}	D (36.4) [147] {531}
9: Noland Rd & Lynn Ct Dr (signalized)			
Overall Intersection	B (11.3)	B (18.7)	B (14.5)
Eastbound Approach	B (14.9) [<25] {115}	C (27.7) [45] {296}	C (22.0) [33] {233}
Westbound Approach	D (36.8) [64] {315}	D (35.9) [56] {263}	D (37.2) [61] {280}
Northbound Approach	A (7.5) [26] {203}	B (10.1) [62] {469}	B (10.3) [68] {379}
Southbound Approach	A (5.3) [28] {238}	C (22.5) [113] {419}	B (10.9) [64] {370}
10: Noland Rd & I-70 WB Off Ramp (signalized)			
Overall Intersection	B (11.6)	B (12.3)	B (12.8)
Westbound Approach	C (20.6) [<25] {150}	C (29.1) [44] {188}	C (30.6) [58] {229}
Northbound Approach ⁷	A (4.1) [<25] {140}	A (2.7) [<25] {195}	A (3.2) [<25] {219}
Southbound Approach	B (13.3) [56] {403}	B (15.1) [91] {564}	B (13.1) [68] {467}
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)			
Overall Intersection	B (17.6)	C (21.9)	B (20.0)
Eastbound Approach	C (29.9) [54] {249}	D (36.4) [92] {365}	D (35.4) [87] {349}
Northbound Approach	C (21.1) [34] {239}	C (28.9) [107] {488}	C (27.4) [87] {464}
Southbound Approach ⁸	A (8.1) [55] {240}	A (6.1) [28] {265}	A (4.5) [<25] {253}
12: Noland Rd & E 42nd St (unsignalized)			
Eastbound Approach	B (13.5) [<25] {42}	D (30.5) [<25] {73}	D (27.8) [<25] {96}
Westbound Approach	A (8.0) [<25] {91}	C (15.2) [<25] {125}	B (12.5) [<25] {100}
Northbound Left-Turn	A (2.9) [<25] {66}	A (7.3) [<25] {217}	B (12.6) [<25] {204}
Southbound Left-Turn	A (3.4) [<25] {95}	A (8.7) [<25] {133}	A (8.3) [<25] {176}
13: Noland Rd & E 42nd Terrace (signalized)			
Overall Intersection	A (6.5)	B (15.9)	B (12.1)
Eastbound Approach	D (39.1) [<25] {134}	D (44.7) [48] {250}	D (43.0) [29] {163}
Westbound Approach	C (23.2) [<25] {97}	C (27.3) [51] {218}	C (27.9) [45] {209}
Northbound Approach	A (5.1) [<25] {162}	B (16.7) [65] {403}	B (12.3) [46] {372}
Southbound Approach	A (2.1) [<25] {133}	A (6.7) [27] {286}	A (5.4) [<25] {253}

⁷ Northbound queues extended to upstream intersection, capping the max queue at ~220ft, actual queues represented by the Northbound Approach at the I-70 EB Off Ramp.

⁸ Southbound queues extended to upstream intersection, capping the max queue at ~240ft, actual queues represented by the Southbound Approach at the I-70 WB Off Ramp.

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
14: Canterbury Pl & Lynn Court Dr (unsignalized)			
Eastbound Left-Turn	A (1.9) [<25] {<25}	A (1.6) [<25] {43}	A (1.7) [<25] {27}
Westbound Left-Turn	A (0.0) [<25] {<25}	A (0.0) [<25] {<25}	A (2.7) [<25] {<25}
Northbound Approach	A (0.0) [<25] {<25}	B (11.7) [<25] {49}	B (10.8) [<25] {26}
Southbound Approach	A (8.5) [<25] {75}	A (8.0) [<25] {84}	A (8.8) [<25] {78}
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	A (9.8)	B (12.6)	B (11.8)
Westbound Approach	B (15.7) [<25] {160}	B (19.4) [29] {202}	B (17.3) [29] {216}
Northbound Approach	A (6.1) [<25] {172}	B (12.7) [58] {313}	A (7.9) [27] {240}
Southbound Approach	B (10.8) [<25] {156}	B (10.2) [<25] {180}	B (14.5) [29] {179}
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)			
Overall Intersection	B (14.4)	B (17.1)	B (14.3)
Eastbound Approach	B (16.2) [<25] {105}	C (27.8) [53] {213}	B (17.9) [34] {165}
Northbound Approach	A (8.3) [<25] {153}	B (14.5) [30] {227}	B (12.8) [29] {216}
Southbound Approach	B (19.9) [75] {228}	B (11.7) [60] {283}	B (13.2) [68] {267}

2026 FORECASTED SAFETY MODELING ANALYSIS

The 2026 Forecasted safety models were created using the same modeling methodology applied to the No-Build analysis and updated to reflect the volume, geometric, and operational changes considered in the 2026 Forecasted conditions. The resulting predicted crashes are shown below in **Table 26**, along with a comparison to the 2026 No-Build results.

Table 26. 2026 Build Predicted Annual Crashes

Roadway Facility Type	2026 No-Build Annual Crashes	2026 Forecasted Annual Crashes
Freeway Segments	94.5	93.5
Ramp Segments	4.5	4.7
Ramp Terminals	20.4	22.0
Arterial Segments	2.3	2.5
Arterial Intersections	13.7	15.6
Total	135.5	138.3

As shown, the number of predicted crashes increases nominally from 135.5 annual crashes to 138.3 annual crashes under the 2026 Forecasted conditions. This is largely due to the shift in volume in the study area (diverted trips from I-70 to and from the proposed Wally's) which otherwise would not access Noland Road under No-Build conditions.

The number of freeway crashes shows a slight decrease in predicted values. This is due to the number of vehicles normally passing by the Noland Road interchange on the freeway who instead divert to the ramps to access the proposed Wally's development. This results in a lower number of vehicles on the I-70 between the ramps under Forecasted conditions as compared to No-Build conditions, which in turn results in a lower number of freeway segment crashes. The decrease in freeway segment crashes is also due to the increased deceleration and acceleration lengths recommended for the ramps at the Noland Road interchange.

The ramp segments, ramp terminals, arterial segments, and arterial intersections all experience higher volumes under the Forecasted conditions, which results in higher crash exposure rates on those segments. This in turn increases the number of crashes on those facilities. While there is an increase in the total number of crashes, it is minimal at only 2.8 more annual crashes, which equates to just over 2% per year.

2046 FORECASTED CONDITIONS

The year 2046 was selected as the design year for evaluating future traffic conditions based on a 20-year design horizon from when the proposed Wally's would be open. The 20-year scenario is a planning-level analysis intended to help the City of Independence and MoDOT strategize future infrastructure needs.

The previously presented recommended improvements were included in the analysis to assess the expected traffic impacts of the Wally's development and ensure that surrounding roadway operations would not be oversaturated. The 2046 Forecasted analysis reflects projected conditions in the study area by incorporating anticipated background traffic growth, trip generation from the proposed Wally's Travel Center, and recommended traffic improvements.

The 2024 existing traffic volumes were grown by 0.35% through the year 2046 and combined with trip generation estimates from the proposed Wally's to produce the 2046 Forecasted traffic volumes, as detailed in **Appendix E**.

2046 FORECASTED SYNCHRO TRAFFIC OPERATIONAL ANALYSIS

The 2046 Forecasted Operating Conditions were evaluated at the study intersections using Synchro 11, with a summary provided in **Table 27**. It should again be noted that Synchro results are only shown for the study intersections not included within the VISSIM model, as requested by MoDOT, given the higher confidence level in the VISSIM results.

With the Wally's Travel Center and recommended improvements in place, the 2046 Forecasted Conditions are expected to operate acceptably overall. The US 40 and I-70 interchange would be expected to operate similarly to the 2046 No-Build conditions given that traffic volumes are not anticipated to change at the interchange.

The Noland Road corridor (35th Street to 42nd Terrace) is expected to continue to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. Similar to the previous scenarios, the westbound approach at 37th Street would be expected to operate at a LOS F during all peak periods except for the AM peak period. In addition, the eastbound approach at E 42nd Street would experience a LOS F during the Truman HS and Elementary School dismissal (other periods reported via VISSIM). However, both the 37th Street and 42nd Street intersections maintain acceptable queue lengths and capacity. These operating conditions are similar to the No-Build operating conditions and mitigation measures, such as restricting turning movements at 42nd Street could be pursued if desired by MoDOT and/or the City of Independence. However, it is our understanding that the City of Independence is evaluating improvements to these intersections as part of their Capital Improvement Plan.

The eastbound approach at Noland Road and E 39th Street would be expected to operate at a LOS D and LOS E during the Truman HS Dismissal and Elementary School Dismissal (other periods reported via VISSIM), respectively, which is similar to the 2026 Forecasted scenario.

The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place during the Truman High School dismissal peak hour and the Elementary School dismissal

peak hour (other periods reported via VISSIM) with an overall LOS C or better for both the eastbound and westbound ramp terminals. The additional westbound right-turn lane on the off ramp would add capacity to the interchange, thereby improving the operations. The southbound queue length at the eastbound ramps is still expected to extend past the westbound ramp terminal, as it does today. However, the queue length would not be expected to extend past Lynn Court Drive based on the Synchro analysis.

The realigned and improved intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during both peak periods shown (other periods reported via VISSIM). The average queues would not be expected to extend past nearby intersections and the v/c ratios indicate that there is surplus capacity at this intersection despite the addition of the Wally's traffic. However, it should be noted that during peak periods, the max westbound queue would extend past Canterbury Place periodically.

The intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well during the Truman High School dismissal peak hour and the Elementary School dismissal peak hour (other periods reported via VISSIM) with a LOS C or better for each approach. Queues would be expected to be minimal at less than one car and the v/c ratios indicate surplus capacity.

Under the 2046 No-Build conditions, the northbound approach at Canterbury Place and E 39th Street would be expected to operate at a LOS B through the year 2046 with the northbound left-turn restriction in place.

However, similar to the 2026 Forecasted scenario, the intersection of Canterbury Place and E 39th Street was modeled with full access should the City of Independence choose to maintain the existing access control. Operating conditions with full access at Canterbury Place and E 39th Street are provided in **Table 28**. As shown, the northbound approach would be expected to generally operate acceptably through all peak periods, with the exception of the Elementary School Dismissal periods where the northbound would be expected to operate at a LOS F. In addition, it is expected that the westbound queue length at Noland Road and 39th Street would extend past the intersection of Canterbury Place and E 39th Street during the weekday AM, Elementary School Dismissal, and Saturday midday peak hours.

The signalized intersections at Phelps Road and Lee's Summit Road with E 39th Street would operate at LOS C and LOS D overall or better, respectively, for all approaches and show adequate capacity. The I-70 and Lee's Summit Road interchange would also perform well with LOS C or better with no excessive queuing, which is also observed in the No-Build scenario as well as the 2026 Forecasted scenario.

Overall, it can be concluded that even when the additional traffic from the proposed Wally's and 20 years of continued growth in background traffic is considered, that the roadway network in the year 2046 will operate acceptably and have adequate capacity once the recommended intersection improvements are constructed and signal timing modifications are implemented along the Noland Road corridor.

Table 27. 2046 Forecasted Operating Conditions (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 27	C (29.8)	E (59.8)	See VISSIM results in Table 27	See VISSIM results in Table 27
Westbound Approach		C (33.7) [#369] <0.89>	C (30.0) [#342] <0.81>		
Northbound Approach		C (30.3) [#359] <0.96>	D (48.4) [#334] <1.07>		
Southbound Approach		C (26.7) [319] <0.71>	E (79.6) [#817] <1.08>		
2: US 40 & I-70 EB Off-Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 27	B (16.3)	C (27.1)	See VISSIM results in Table 27	See VISSIM results in Table 27
Eastbound Approach		B (14.3) [44] <0.67>	E (71.0) [80] <1.03>		
Northbound Approach		C (22.8) [276] <0.47>	D (36.5) [284] <0.66>		
Southbound Approach		B (11.9) [m145] <0.48>	A (8.2) [m111] <0.79>		
3: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
4: Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (unsignalized)					
Overall Intersection	Intersection has no conflicting movements				
5: Noland Rd & E 35th St (signalized)					
Overall Intersection	C (23.9)	C (31.0)	C (29.8)	C (30.7)	C (25.2)
Eastbound Approach	C (34.6) [92] <0.54>	D (37.5) [140] <0.78>	D (41.2) [182] <0.81>	D (44.7) [185] <0.84>	C (31.4) [110] <0.73>
Westbound Approach	C (34.6) [115] <0.65>	D (50.8) [172] <0.78>	D (42.7) [132] <0.58>	D (42.2) [161] <0.69>	D (41.8) [152] <0.69>
Northbound Approach	A (6.8) [51] <0.38>	B (13.2) [131] <0.62>	B (14.2) [242] <0.63>	B (15.4) [86] <0.68>	B (14.4) [125] <0.64>
Southbound Approach	C (27.1) [255] <0.53>	D (35.6) [387] <0.73>	C (33.9) [425] <0.72>	C (33.6) [408] <0.75>	C (27.8) [381] <0.63>
6: Noland Rd & Noland Ct (signalized)					
Overall Intersection	A (3.0)	A (4.0)	A (4.9)	A (8.0)	A (7.2)
Eastbound Approach	A (0.1) [<25] <0.03>	D (41.6) [42] <0.41>	D (44.9) [62] <0.51>	D (44.5) [42] <0.53>	D (38.0) [37] <0.44>
Westbound Approach	A (0.2) [<25] <0.02>	A (1.9) [<25] <0.16>	A (1.7) [<25] <0.15>	A (1.3) [<25] <0.13>	D (42.5) [<25] <0.14>
Northbound Approach	A (1.3) [<25] <0.23>	A (2.5) [78] <0.42>	A (2.1) [70] <0.38>	B (10.5) [455] <0.41>	A (9.6) [439] <0.38>
Southbound Approach	A (4.5) [75] <0.35>	A (4.1) [108] <0.52>	A (5.2) [149] <0.59>	A (4.0) [134] <0.60>	A (3.2) [93] <0.49>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
7: Noland Rd & E 37th St (unsignalized)					
Eastbound Approach	C (21.8) [<25] <0.06>	E (40.2) [38] <0.35>	F (104.2) [128] <0.83>	E (41.8) [28] <0.28>	C (18.2) [<25] <0.15>
Westbound Approach	D (31.5) [38] <0.35>	F (211.4) [128] <1.00>	F (204.4) [100] <0.89>	F (347.2) [98] <1.07>	F (87.1) [55] <0.51>
Northbound Left-Turn	A (9.6) [<25] <0.00>	B (12.2) [<25] <0.01>	B (12.0) [<25] <0.00>	B (13.5) [<25] <0.01>	B (11.0) [<25] <0.01>
Southbound Left-Turn	A (9.5) [<25] <0.03>	B (11.2) [<25] <0.04>	B (11.3) [<25] <0.05>	B (12.4) [<25] <0.06>	B (11.3) [<25] <0.02>
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	See VISSIM results in Table 27	C (30.5)	D (39.2)	See VISSIM results in Table 27	See VISSIM results in Table 27
Eastbound Approach		D (46.9) [#267] <0.82>	E (67.9) [#388] <0.99>		
Westbound Approach		D (45.1) [184] <0.68>	D (51.3) [#228] <0.80>		
Northbound Approach		C (22.5) [#457] <0.93>	C (23.0) [368] <0.88>		
Southbound Approach		C (27.6) [#484] <0.78>	D (39.7) [#536] <0.96>		
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	See VISSIM results in Table 27	B (14.4)	B (19.1)	See VISSIM results in Table 27	See VISSIM results in Table 27
Eastbound Approach		C (24.3) [m66] <0.68>	C (34.4) [m113] <0.84>		
Westbound Approach		D (45.0) [192] <0.82>	D (44.5) [164] <0.80>		
Northbound Approach		A (8.0) [171] <0.65>	B (17.7) [456] <0.67>		
Southbound Approach		A (6.5) [94] <0.68>	A (5.5) [88] <0.76>		
10: Noland Rd & I-70 WB Off Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 27	B (17.6)	B (15.1)	See VISSIM results in Table 27	See VISSIM results in Table 27
Westbound Approach		D (40.1) [184] <0.83>	D (38.0) [145] <0.78>		
Northbound Approach		B (10.6) [210] <0.48>	B (10.8) [m101] <0.46>		
Southbound Approach		B (13.1) [179] <0.57>	B (11.1) [208] <0.56>		
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)					
Overall Intersection	See VISSIM results in Table 27	C (24.3)	C (30.7)	See VISSIM results in Table 27	See VISSIM results in Table 27
Eastbound Approach		D (41.2) [256] <0.82>	C (33.1) [205] <0.77>		
Northbound Approach		C (23.3) [228] <0.71>	D (51.0) [#433] <0.99>		
Southbound Approach		B (14.7) [456] <0.78>	A (7.1) [154] <0.65>		

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
12: Noland Rd & E 42nd St (unsignalized)					
Eastbound Approach	See VISSIM results in Table 27	F (131.0) [65] <0.62>	F (154.4) [58] <0.59>	See VISSIM results in Table 27	See VISSIM results in Table 27
Westbound Approach		D (25.8) [38] <0.34>	E (37.5) [58] <0.48>		
Northbound Left-Turn		B (10.3) [<25] <0.01>	B (11.7) [<25] <0.01>		
Southbound Left-Turn		B (12.5) [<25] <0.17>	B (14.8) [<25] <0.20>		
13: Noland Rd & E 42nd Terrace (signalized)					
Overall Intersection	See VISSIM results in Table 27	C (23.7)	C (26.7)	See VISSIM results in Table 27	See VISSIM results in Table 27
Eastbound Approach		D (51.1) [114] <0.56>	E (57.8) [#217] <0.82>		
Westbound Approach		C (29.9) [139] <0.61>	D (41.3) [#196] <0.82>		
Northbound Approach		C (24.0) [379] <0.62>	C (28.3) [415] <0.71>		
Southbound Approach		B (17.9) [363] <0.44>	B (14.0) [310] <0.64>		
14: Canterbury Pl & Lynn Court Dr (unsignalized)					
Eastbound Left-Turn	See VISSIM results in Table 27	A (8.4) [<25] <0.03>	A (8.5) [<25] <0.06>	See VISSIM results in Table 27	See VISSIM results in Table 27
Westbound Left-Turn		A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>		
Northbound Approach		C (20.5) [<25] <0.08>	C (22.0) [<25] <0.14>		
Southbound Approach		B (12.4) [<25] <0.18>	B (13.3) [25] <0.26>		
15: Lynn Ct Dr & E 39th St (unsignalized)					
Westbound Left-Turn	A (8.2) [<25] <0.01>	A (8.3) [<25] <0.02>	A (9.4) [<25] <0.03>	A (8.8) [<25] <0.02>	A (8.8) [<25] <0.02>
Northbound Approach	B (13.0) [<25] <0.11>	B (14.1) [<25] <0.17>	C (20.4) [35] <0.33>	C (16.8) [28] <0.27>	C (16.5) [30] <0.29>
16: Canterbury Pl & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.6) [<25] <0.00>	A (8.2) [<25] <0.01>	A (8.4) [<25] <0.01>	A (8.2) [<25] <0.01>	A (8.2) [<25] <0.01>
Westbound Left-Turn	A (7.9) [<25] <0.03>	A (8.5) [<25] <0.02>	A (9.3) [<25] <0.04>	A (8.9) [<25] <0.02>	A (8.4) [<25] <0.02>
Northbound Approach	A (9.6) [<25] <0.02>	B (11.8) [<25] <0.10>	B (14.8) [<25] <0.19>	B (13.5) [<25] <0.16>	B (11.3) [<25] <0.07>
Southbound Approach	B (14.2) [<25] <0.05>	C (17.3) [<25] <0.12>	C (22.1) [<25] <0.17>	C (16.7) [<25] <0.08>	B (13.2) [<25] <0.06>
17: Hocker Ave & E 39th St (unsignalized)					
Eastbound Left-Turn	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.1) [<25] <0.00>
Westbound Left-Turn	A (7.6) [<25] <0.00>	A (8.4) [<25] <0.00>	A (9.3) [<25] <0.00>	A (8.6) [<25] <0.00>	A (8.3) [<25] <0.00>
Northbound Approach	B (14.7) [<25] <0.05>	C (17.9) [<25] <0.07>	D (34.9) [<25] <0.18>	C (19.6) [<25] <0.08>	C (16.4) [<25] <0.07>
Southbound Approach	A (0.0) [<25] <0.00>	B (10.4) [<25] <0.01>	A (0.0) [<25] <0.00>	C (19.9) [<25] <0.02>	B (10.6) [<25] <0.01>

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
18: Phelps Rd & E 39th St (signalized)					
Overall Intersection	C (20.1)	C (22.9)	C (35.0)	C (27.2)	C (22.8)
Eastbound Approach	C (22.5) [116] <0.28>	C (25.0) [240] <0.56>	D (54.5) [#588] <0.96>	D (36.5) [#453] <0.79>	C (29.1) [308] <0.62>
Westbound Approach	C (21.3) [289] <0.48>	C (23.3) [270] <0.48>	C (28.4) [362] <0.70>	C (24.8) [269] <0.50>	C (20.7) [280] <0.48>
Northbound Approach	B (16.5) [84] <0.19>	B (16.1) [83] <0.19>	B (16.8) [106] <0.28>	B (16.9) [103] <0.25>	B (14.6) [80] <0.14>
Southbound Approach	B (19.0) [52] <0.14>	C (25.0) [112] <0.36>	C (26.3) [124] <0.28>	C (23.2) [104] <0.21>	C (23.6) [77] <0.19>
19: Lee's Summit Rd & E 39th St (signalized)					
Overall Intersection	C (24.0)	C (34.2)	D (40.7)	D (39.5)	C (29.8)
Eastbound Approach	B (17.6) [53] <0.44>	C (33.1) [172] <0.35>	D (47.7) [#357] <0.75>	D (44.0) [#297] <0.67>	D (35.6) [#183] <0.72>
Westbound Approach	C (23.0) [169] <0.51>	C (30.4) [296] <0.63>	C (34.4) [298] <0.64>	C (33.2) [275] <0.61>	C (24.7) [234] <0.61>
Northbound Approach	C (20.6) [85] <0.68>	C (24.5) [129] <0.70>	C (26.7) [195] <0.74>	C (26.8) [198] <0.75>	C (26.0) [#188] <0.80>
Southbound Approach	C (33.4) [145] <0.71>	D (53.4) [218] <0.74>	E (57.0) [#338] <0.94>	E (56.3) [#281] <0.93>	D (37.1) [#204] <0.77>
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)					
Overall Intersection		B (17.2)	B (15.0)		
Westbound Approach	See VISSIM results in Table 27	C (25.9) [131] <0.51>	C (31.9) [126] <0.60>	See VISSIM results in Table 27	See VISSIM results in Table 27
Northbound Approach		B (17.8) [226] <0.64>	B (15.3) [206] <0.57>		
Southbound Approach		B (12.8) [130] <0.29>	A (9.3) [151] <0.44>		
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)					
Overall Intersection		C (20.3)	C (21.7)		
Eastbound Approach	See VISSIM results in Table 27	D (35.9) [152] <0.66>	D (35.5) [166] <0.70>	See VISSIM results in Table 27	See VISSIM results in Table 27
Northbound Approach		B (17.3) [158] <0.28>	B (18.6) [194] <0.36>		
Southbound Approach		B (11.7) [198] <0.36>	B (14.5) [306] <0.61>		

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

m – Volume for 95th percentile queue is metered by upstream signal

Table 28. 2046 Forecasted Operating Conditions (Synchro) – Full Access at Canterbury PI & E 39th St

Intersection & Movements	LOS (Delay, sec) [95th % Queue, ft] <v/c>				
	AM Peak Hour	Truman HS Dismissal	Elementary Dismissal	PM Peak Hour	Sat Midday Hour
8: Noland Rd & E 39th St (signalized)					
Overall Intersection	C (23.4)	C (29.2)	D (38.3)	D (48.2)	C (37.9)
Eastbound Approach	C (32.6) [130] <0.63>	D (47.7) [#267] <0.82>	E (68.8) [#388] <0.99>	E (57.0) [#380] <0.93>	D (43.6) [#262] <0.80>
Westbound Approach	D (44.5) [227] <0.79>	D (45.3) [213] <0.74>	D (51.8) [#239] <0.80>	D (50.5) [215] <0.80>	D (52.8) [#231] <0.81>
Northbound Approach	B (12.2) [108] <0.62>	B (17.7) [#403] <0.79>	B (18.5) [342] <0.72>	B (16.8) [217] <0.77>	B (15.2) [m#222] <0.74>
Southbound Approach	B (16.2) [74] <0.66>	C (27.7) [#484] <0.78>	D (39.7) [#536] <0.96>	E (75.0) [#626] <1.08>	D (52.9) [#600] <1.00>
9: Noland Rd & Lynn Ct Dr (signalized)					
Overall Intersection	B (18.1)	B (14.5)	B (19.2)	C (27.5)	C (24.6)
Eastbound Approach	B (17.4) [m15] <0.60>	C (24.2) [m68] <0.68>	C (34.3) [114] <0.84>	D (53.1) [#193] <0.92>	C (25.0) [m79] <0.74>
Westbound Approach	D (42.6) [153] <0.70>	D (49.0) [192] <0.82>	D (49.8) [164] <0.80>	D (45.5) [161] <0.75>	D (46.9) [165] <0.76>
Northbound Approach	B (17.3) [190] <0.76>	A (8.0) [171] <0.65>	B (17.7) [456] <0.67>	C (23.0) [m572] <0.82>	B (18.8) [m463] <0.74>
Southbound Approach	B (10.2) [167] <0.71>	A (6.5) [94] <0.68>	A (5.5) [m88] <0.76>	C (20.7) [m113] <0.98>	B (23.9) [m#555] <0.93>
14: Canterbury PI & Lynn Court Dr (unsignalized)					
Eastbound Left-Turn	A (9.0) [<25] <0.01>	A (8.4) [<25] <0.03>	A (8.5) [<25] <0.06>	A (8.8) [<25] <0.07>	A (8.2) [<25] <0.03>
Westbound Left-Turn	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (0.0) [<25] <0.00>	A (8.2) [<25] <0.00>
Northbound Approach	A (0.0) [<25] <0.00>	C (19.8) [<25] <0.08>	C (21.2) [<25] <0.14>	D (28.0) [<25] <0.17>	C (17.7) [<25] <0.03>
Southbound Approach	C (14.9) [<25] <0.15>	B (13.5) [<25] <0.10>	B (14.1) [<25] <0.17>	C (16.5) [<25] <0.10>	B (11.9) [<25] <0.11>
16: Canterbury PI & E 39th St (unsignalized)					
Eastbound Left-Turn	A (8.6) [<25] <0.00>	A (8.2) [<25] <0.01>	A (8.4) [<25] <0.01>	A (8.2) [<25] <0.01>	A (8.2) [<25] <0.01>
Westbound Left-Turn	A (7.9) [<25] <0.03>	A (8.5) [<25] <0.02>	A (9.3) [<25] <0.04>	A (8.9) [<25] <0.02>	A (8.4) [<25] <0.02>
Northbound Approach	B (13.2) [<25] <0.06>	C (23.3) [43] <0.38>	F (55.8) [118] <0.72>	D (27.2) [58] <0.46>	C (19.6) [25] <0.25>
Southbound Approach	B (14.2) [<25] <0.05>	C (17.3) [<25] <0.12>	C (22.3) [<25] <0.17>	B (16.8) [<25] <0.08>	B (13.2) [<25] <0.06>

Delay presented in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cyclesm – Volume for 95th percentile queue is metered by upstream signal

2046 FORECASTED VISSIM TRAFFIC OPERATIONAL ANALYSIS

The 2046 Forecasted operating conditions at the study intersections were evaluated using VISSIM and are summarized in **Table 29**. As shown, the operating conditions generally align with those shown in the 2046 No-Build Conditions, demonstrating that the improved roadway network will have adequate capacity into the year 2046 to accommodate the Wally's traffic.

The US 40 and I-70 interchange is expected to operate acceptably with an overall LOS C or better during all reporting peak periods. Little changes are expected at this interchange when compared to the 2046 No-Build scenario as traffic volumes at the interchange are not expected to be impacted by the proposed development.

The I-70 and Noland Road interchange is expected to operate at an overall LOS C or better during all three reporting peak periods considered, similar to the 2026 Forecasted conditions. It is expected that the maximum southbound queue length on Noland Road from the I-70 ramp terminals would back extend to Lynn Court Drive, on occasion, in the year 2046. However, on average, the queue length would only extend less than 150 feet north of the ramps. The northbound queue would also be expected to extend past 42nd Street under the maximum queue, with an average queue length of less than 100 feet.

The Noland Road corridor is also expected to operate acceptably, similar to the Synchro results. The signalized intersections along Noland Road would operate with an overall LOS C or better during all three reporting peak periods considered. All unsignalized intersections along Noland Road generally operate acceptably, with similar operations when compared to No-Build conditions.

The improved and realigned intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during all three reporting peak periods, with each approach operating at a LOS D or better. The average westbound queue length is expected to be approximately 60 feet. However, there may be short periods of time during the peak periods where the maximum westbound queue would extend into Lynn Court Drive and Canterbury Place. The adjacent intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well with a LOS B or better on each approach.

Lastly, the Lee's Summit interchange would also operate favorably with an overall LOS B or better during all three peak periods modeled, with all individual approaches operating at a LOS C or better.

Overall, it can be concluded that with the recommended improvements in place, the study area would be able to adequately accommodate the traffic generated by the proposed Wally's development through the year 2046. However, during peak periods the southbound and northbound maximum queue lengths extending back from the I-70 interchange would be expected to extend back to the adjacent intersections of Lynn Court Drive and 42nd Street (it should be noted that the average queue lengths would not extend into the adjacent intersections).

Table 29. 2046 Forecasted Operating Conditions (VISSIM)

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
1: US 40 & I-70 WB On Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (13.5)	C (22.3)	B (17.0)
Westbound Approach	B (19.8) [45] {285}	C (22.4) [58] {354}	B (17.9) [50] {362}
Northbound Approach	A (6.0) [26] {372}	B (12.0) [38] {349}	B (14.0) [58] {343}
Southbound Approach	B (19.9) [34] {212}	C (27.1) [148] {672}	B (18.5) [52] {317}
2: US 40 & I-70 EB Off-Ramp (signalized)			
Overall Intersection	B (15.9)	B (16.4)	B (14.0)
Eastbound Approach	A (8.9) [<25] {86}	B (15.0) [<25] {104}	B (10.1) [<25] {93}
Northbound Approach	B (18.0) [58] {337}	C (31.5) [81] {352}	C (20.8) [53] {295}
Southbound Approach	B (14.4) [28] {206}	A (8.6) [66] {258}	A (9.3) [33] {233}
8: Noland Rd & E 39th St (signalized)			
Overall Intersection	C (26.4)	C (33.1)	C (31.0)
Eastbound Approach	C (30.1) [64] {245}	D (48.1) [161] {654}	D (38.0) [106] {502}
Westbound Approach	D (39.4) [146] {458}	D (42.1) [119] {423}	D (42.0) [119] {421}
Northbound Approach	B (11.5) [37] {242}	B (15.1) [98] {455}	B (15.3) [99] {443}
Southbound Approach	C (27.9) [94] {382}	D (42.9) [196] {681}	D (40.9) [181] {644}
9: Noland Rd & Lynn Ct Dr (signalized)			
Overall Intersection	B (11.5)	B (14.8)	B (18.0)
Eastbound Approach	B (15.6) [<25] {113}	C (28.3) [49] {292}	C (29.2) [48] {304}
Westbound Approach	D (36.3) [63] {310}	D (37.5) [57] {263}	D (37.2) [61] {291}
Northbound Approach	A (8.0) [29] {232}	B (12.0) [83] {508}	B (12.8) [91] {464}
Southbound Approach	A (5.9) [34] {345}	A (8.5) [52] {307}	B (16.2) [94] {541}
10: Noland Rd & I-70 WB Off Ramp (signalized)			
Overall Intersection	B (12.2)	B (12.9)	B (13.9)
Westbound Approach	C (21.6) [<25] {154}	C (30.5) [47] {220}	C (33.1) [64] {236}
Northbound Approach ⁹	A (4.6) [<25] {139}	A (2.8) [<25] {227}	A (3.0) [<25] {225}
Southbound Approach	B (14.2) [66] {499}	B (15.7) [110] {580}	B (14.6) [89] {531}
11: Noland Rd & I-70 EB Off Ramp/I-70 EB On Ramp (signalized)			
Overall Intersection	B (17.3)	C (23.5)	C (21.7)
Eastbound Approach	C (29.4) [55] {250}	D (35.9) [90] {361}	D (38.8) [102] {445}
Northbound Approach	B (19.8) [33] {236}	C (34.0) [143] {494}	C (30.0) [108] {481}
Southbound Approach ¹⁰	A (8.6) [61] {243}	A (5.9) [30] {270}	A (4.5) [<25] {266}
12: Noland Rd & E 42nd St (unsignalized)			
Eastbound Approach	C (16.4) [<25] {51}	F (61.9) [<25] {109}	E (37.2) [<25] {105}
Westbound Approach	A (7.7) [<25] {88}	C (22.3) [<25] {142}	B (14.3) [<25] {110}
Northbound Left-Turn	A (5.0) [<25] {85}	A (9.2) [<25] {283}	B (13.0) [<25] {237}
Southbound Left-Turn	A (3.8) [<25] {142}	B (11.3) [<25] {168}	A (9.8) [<25] {175}
13: Noland Rd & E 42nd Terrace (signalized)			
Overall Intersection	A (7.1)	B (18.5)	B (13.6)
Eastbound Approach	D (39.5) [<25] {141}	D (42.3) [49] {231}	D (42.0) [30] {167}
Westbound Approach	C (23.8) [<25] {107}	C (30.3) [59] {255}	C (28.3) [48] {199}
Northbound Approach	A (5.8) [<25] {167}	C (21.0) [87] {446}	B (14.8) [59] {372}

⁹ Northbound queues extended to upstream intersection, capping the max queue at ~220ft, actual queues represented by the Northbound Approach at the I-70 EB Off Ramp.

¹⁰ Southbound queues extended to upstream intersection, capping the max queue at ~240ft, actual queues represented by the Southbound Approach at the I-70 WB Off Ramp.

Intersection & Movements	LOS (Delay, sec) [Average Queue, ft] {Max Queue, ft}		
	AM Peak Hour	PM Peak Hour	Sat Midday Hour
Southbound Approach	A (2.6) [<25] {179}	A (8.2) [34] {312}	A (6.2) [<25] {264}
14: Canterbury Pl & Lynn Court Dr (unsignalized)			
Eastbound Left-Turn	A (1.7) [<25] {<25}	A (1.7) [<25] {42}	A (1.6) [<25] {39}
Westbound Left-Turn	A (0.0) [<25] {<25}	A (0.0) [<25] {<25}	A (1.9) [<25] {<25}
Northbound Approach	A (0.0) [<25] {<25}	B (10.6) [<25] {35}	B (10.5) [<25] {26}
Southbound Approach	A (9.0) [<25] {72}	A (8.5) [<25] {70}	A (9.3) [<25] {85}
20: Lee's Summit Rd & I-70 WB On-Ramp / I-70 WB Off-Ramp (signalized)			
Overall Intersection	B (10.6)	B (13.1)	B (12.2)
Westbound Approach	B (18.9) [<25] {209}	C (20.6) [33] {209}	B (16.4) [29] {189}
Northbound Approach	A (6.5) [<25] {204}	B (12.8) [63] {301}	A (8.4) [32] {288}
Southbound Approach	B (11.2) [<25] {152}	B (10.8) [<25] {194}	B (15.1) [32] {187}
21: Lee's Summit Rd & I-70 EB Off-Ramp / I-70 EB On-Ramp (signalized)			
Overall Intersection	B (14.4)	B (17.2)	B (14.6)
Eastbound Approach	B (16.9) [<25] {116}	C (28.3) [56] {208}	B (18.0) [36] {167}
Northbound Approach	A (9.2) [<25] {159}	B (15.2) [32] {224}	B (13.4) [33] {239}
Southbound Approach	B (18.7) [75] {243}	B (11.3) [61] {289}	B (13.3) [73] {266}

2046 FORECASTED SAFETY MODELING ANALYSIS

The 2046 Forecasted safety models were created using the same modeling methodology applied to the No-Build analysis and updated to reflect the volume, geometric, and operational changes proposed for the 2046 Forecasted conditions. The resulting predicted crashes are shown below in **Table 30** with a comparison to the 2046 No-Build results.

Table 30. 2046 Build Predicted Annual Crashes

Roadway Facility Type	2046 No-Build Annual Crashes	2046 Forecasted Annual Crashes
Freeway Segments	105.7	104.4
Ramp Segments	4.8	5.0
Ramp Terminals	22.6	23.4
Arterial Segments	2.5	2.7
Arterial Intersections	14.9	16.4
Total	150.5	151.8

As shown, the number of predicted crashes increases from 150.5 annual crashes to 151.8 annual crashes under the 2046 Forecasted conditions. Similar to the 2026 Forecasted conditions, this is largely due to the diversion in traffic volume from I-70 to Noland Road due to the proposed Wally's development.

Similar to the 2026 Forecasted conditions, the number of freeway crashes is predicted to experience a slight decrease under 2046 Forecasted conditions. The decrease in freeway segment crashes is attributable to the diversion of traffic off I-70 between the ramps and the increased deceleration and acceleration lengths proposed for the ramps at the Noland Road interchange.

The ramp segments, ramp terminals, arterial segments, and arterial intersections all experience higher volumes under the Forecasted conditions as compared to the No-Build scenario. This results in higher crash exposure rates on those segments, which in turn increases the number of crashes on those facilities. While there is a net increase in the total number of crashes, it is minimal at only 1.3 more annual crashes, which equates to under 1% increase per year.

CONCLUSIONS

The preceding traffic impact study was completed per the requirements set forth by MoDOT and the City of Independence as a means of evaluating the potential traffic impacts associated with the proposed Wally's development near the interchange of I-70 with Noland Road. The intent of this study was to identify the traffic generation associated with the proposed development, analyze the associated traffic impacts, and determine the need for mitigation measures, as necessary.

The following conclusions were reached:

EXISTING AND NO-BUILD CONDITIONS

2024 EXISTING CONDITIONS

- The study intersections generally operate favorably in the 2024 Existing conditions. Some side-street approaches at unsignalized intersections along Noland Road experience long delays as they wait for gaps in traffic to complete their turning movement, but that is not uncommon during peak periods in suburban areas. Additionally, the southbound and northbound queues at the I-70 and Noland Road interchange extend past the adjacent ramp terminals, which is not uncommon with a tight diamond configuration. The southbound queue length on Noland Road from the I-70 ramp terminals does not extend past Lynn Court Drive, and the northbound queue does not extend past 42nd Terrace, indicating that the interchange does operate acceptably.
- Overall, the existing conditions indicate that there is adequate capacity at the study intersections.
- Under existing conditions, the study area has experienced 1,082 crashes between 2019 and 2023. The most common crash classification was Rear End accounting for 42% of all crashes. Other common types include Passing and Out of Control which were largely focused near the I-70 acceleration and deceleration lanes for ramp entrances and exits.
- The following recommendations were offered for consideration as a means of improving existing conditions along the Noland Road corridor:
 - Extending the existing acceleration lanes along I-70 at the Noland Road interchange,
 - Correcting the existing offset at the signalized intersection of Noland Road and Lynn Court Drive, and
 - Closing the existing southern Hardee's access drive along Noland Road due to its proximity to the signalized intersection with Lynn Court Drive.

2026 NO-BUILD CONDITIONS

- The year 2026 was used as the project's construction year for purposes of evaluating traffic operations conditions associated with the proposed development. No modifications were made to the existing lane configurations.
- An annual background growth rate of 0.35% for the overall study area and I-70 Corridor was used to forecast future traffic volumes (as agreed to by MoDOT and the City of Independence).

- Upon evaluation, in 2026 the overall study area would experience slightly worsened delays and queue lengths as compared to the 2024 Existing operations, but the network would still be expected to operate acceptably overall.
- Safety analysis models show the predicted number of crashes should be 135.5 annual crashes under 2026 No-Build conditions in the study area. The predicted analysis yielded a lower annual crash rate than the existing rate, thereby indicating the existing roadway network within the study area experiences more crashes as compared to other roadways of similar volume and characteristics.

2046 NO-BUILD CONDITIONS

- The year 2046 was used as the project's horizon design year for purposes of evaluating traffic operations conditions into the future at a planning-level. No modifications were made to the existing lane configurations.
- Upon evaluation, in 2046 the overall study area would experience worsened delays and queue lengths when compared to the 2024 Existing conditions and 2026 No-Build conditions. However, it is anticipated that operations overall within the network would still operate acceptably.
- Safety analysis models show the predicted number of crashes should be 150.5 annual crashes under 2046 No-Build conditions in the study area. This represents an increase of 15 crashes per year as compared to 2026 No-Build conditions, which is attributable to the increased number of vehicles in the roadway network.

PROPOSED DEVELOPMENT

- It is anticipated that the proposed Wally's would provide 84 fueling stations. The proposed Wally's is expected to generate the following trips during each of the critical time periods included in this study:
 - 660 total trips during the weekday AM peak hour
 - 709 total trips during the Truman High School Dismissal peak hour
 - 582 total trips during the Elementary School Dismissal peak hour
 - 632 total trips during the weekday PM peak hour, and
 - 625 total trips during the Saturday Midday peak hour
- Access to the site would be provided primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street.

RECOMMENDED IMPROVEMENTS

In conjunction with the proposed Wally's Travel Center, several roadway improvements are recommended. While some improvements would be necessary as a result of the traffic generated by the proposed Wally's, several improvements such as extending the existing acceleration lanes along I-70 at the Noland Road interchange and/or aligning the existing offset intersection of Noland Road with Lynn

Court Drive would be recommended regardless of the proposed development as a means of improving conditions (from both a traffic operations and safety perspective) along S Noland Road and/or I-70. Ultimately, it is recommended that the following roadway improvements be made prior to the opening of the Wally's Travel Center:

- I-70 EB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Extend the eastbound acceleration lane by a minimum of 145 ft.
- I-70 WB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Maximize the acceleration lane for the existing westbound on ramp to provide approximately 900 ft, inclusive of taper. Note that the proposed taper would end right before the guardrail for the existing railroad overpass. It should be noted that this length would still not meet AASHTO guidelines given the proximity of the railroad overpass. However, this extension would still represent an improvement as compared to existing conditions.
- Noland Road & I-70 EB Ramp Terminal:
 - Extend the existing four-lane section of the eastbound approach to a total of 400 ft measured from the stop-bar.
- Noland Road & I-70 WB Ramp Terminal:
 - Provide an additional westbound right-turn lane to ultimately provide two left turn lanes and two right turn lanes. The dual right-turn lanes should be signalized, allowing right-turns on red after stop. The right-turn lanes should feed into the two existing northbound through lanes.
- Noland Road & Lynn Court Drive:
 - Reconstruct the intersection to correct the existing offset and to allow for the eastbound and westbound approaches to run concurrently. The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide a dedicated left-turn lane and a shared thru/right turn lane.
 - Westbound Approach:
 - Provide dual left-turn lanes, one through lane, and one right-turn lane.
 - Northbound Approach:
 - Provide one left-turn lane, two thru lanes, and one channelized right-turn lane.
 - Southbound Approach:
 - Provide one left-turn lane, one thru lane, and one shared through/right-turn lane.
 - Extend the striping for the southbound left-turn lane to increase the storage length, but do not modify the existing median.

- Provide new traffic signal structures, appurtenances, and pedestrian signalization (with the exception of the SE quadrant).
- Provide three southbound lanes immediately south of Lynn Court Drive and extending to the I-70 EB ramp terminal.
- Close the southernmost Hardee's access drive just north of this intersection to reduce conflicts within the signalized intersection.
- **Lynn Court Drive & Canterbury Place:**
 - Provide a stop-controlled intersection where northbound and southbound traffic is required to stop and eastbound and westbound traffic travels freely.
 - The following lane configurations are recommended:
 - **Eastbound Approach:**
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - **Westbound Approach:**
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - **Northbound Approach:**
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
 - **Southbound Approach:**
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
- **39th Street & Canterbury Place:**
 - Restrict the unsignalized intersection to ¾ access (northbound left turn not permitted) via the construction of a channelized island on the northbound approach.
 - However, should the City of Independence desire, full access at this intersection could remain.
- **Noland Road & 42nd Street:**
 - Consideration should be given towards restricting left-turns for the eastbound and westbound approaches to improve the efficiency of this unsignalized intersection. The existing left-turning vehicles can divert to the signalized intersection of 42nd Terrace.
- **Signal Timing Improvements:**
 - Signal timing improvements along the Noland Road corridor are recommended prior to the Wally's Travel Center being in place. It is anticipated that all cycle lengths, with the exception of the Saturday midday, would remain the same. It is recommended that the Saturday midday cycle length be adjusted from 100 seconds to 110 seconds. A full signal timing progression analysis and implementation along the Noland Road corridor is recommended. It should be noted that coordination between Operation Green Light (OGL) will be necessary prior to the implementation of the new signal timings.

2026 AND 2046 FORECASTED CONDITIONS

The results and conclusions for the following scenarios assume the full build of the proposed Wally's Travel Center is in place in addition to the recommended improvements previously stated.

2026 FORECASTED CONDITIONS

- The year 2026 was used as the construction year for evaluating near-future traffic conditions.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. Side-street approaches would continue to operate with long delays similar to the 2026 No-Build conditions.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place. The additional westbound right-turn lane at the westbound ramps adds capacity to the interchange, improving the operations. The southbound queue length at the eastbound ramps would be expected to extend past the westbound ramp terminal. However, the average queue length would not be expected to extend past Lynn Court Drive.
- The realigned intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during all peak hours. The average westbound queue length would be well contained within the existing laneage. However, during peak periods, the max westbound queue would extend past Canterbury Place periodically.
- The internal intersection of Lynn Court Drive and Canterbury Place would be expected to operate well with minimal queues.
- Under the 2026 No-Build conditions, the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS E, but with the recommended northbound left-turn restriction in place, the approach would improve to a LOS B in the 2026 Forecasted conditions.
- Overall, it was concluded that with the recommended improvements in place, the roadway network in the year 2026 will operate acceptably and have adequate capacity with the proposed Wally's in place.
- Safety analysis models show the 2026 Forecasted conditions should result in 138.3 crashes per year in the study area. This is a *minimal* net increase of 2.8 crashes per year as compared to the 2026 No-Build conditions. The minimal increase in crashes is simply due to the increased number of vehicles entering Noland Road to access Wally's that otherwise would not be present under No-Build conditions. Freeway crashes are slightly *reduced* under 2026 Forecasted conditions due to the increased acceleration and deceleration lengths and the lower volumes under the Noland Road interchange (traffic diverted to the proposed Wally's).

2046 FORECASTED CONDITIONS

- The 2046 Forecasted conditions are similar to the 2026 Forecasted conditions with generally acceptable operating conditions throughout the study area.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to continue to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place with an overall LOS C or better for both ramp terminals.
 - The maximum queue lengths for the northbound and southbound approaches would be expected to extend past the adjacent ramp terminals to Lynn Court Drive and 42nd Street. However, the average queue length would not extend past these intersections.
- The intersection of Noland Road and Lynn Court Drive would be expected to continue to operate at an overall LOS B during all peak periods. The average queues would not be expected to extend past nearby intersections and the v/c ratios indicate that there is surplus capacity at this intersection despite the addition of Wally's. However, it should be noted that during peak periods, the max westbound queue would extend past Canterbury Place periodically.
- The internal intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well with a LOS C or better for each approach.
- Under the 2046 No-Build conditions, the northbound approach at Canterbury Place & E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS F, but with the recommended northbound left-turn restriction in place, the approach would operate at a LOS B through the year 2046.
- Compared to the 2046 No-Build scenario, the overall roadway network would operate acceptably, and with signal timing modifications and lane configuration changes, some of the roadway network would experience shorter delays and queues.
- Safety models predict an annual crash rate of 151.8 crashes per year under 2046 Forecasted conditions. This is a *minimal* net increase of 1.8 crashes per year over the 2046 No-Build. Similar to the 2026 Forecasted conditions comparison, the increase in total crashes is due to the increased number of vehicles attracted to Noland Road due to Wally's that otherwise would not be present on the roadway. The net increase in crashes is minimal at less than 1% per year as compared to No-Build conditions.

Overall, it was concluded that with the recommended improvements in place, the roadway network can accommodate the proposed Wally's through the year 2046.

APPENDIX

Appendix A – 2024 Existing Traffic Volume

Appendix B – 2026 No-Build Traffic Volumes

Appendix C – 2046 No-Build Traffic Volumes

Appendix D – 2026 Forecasted Traffic Volumes

Appendix E – 2046 Forecasted Traffic Volumes

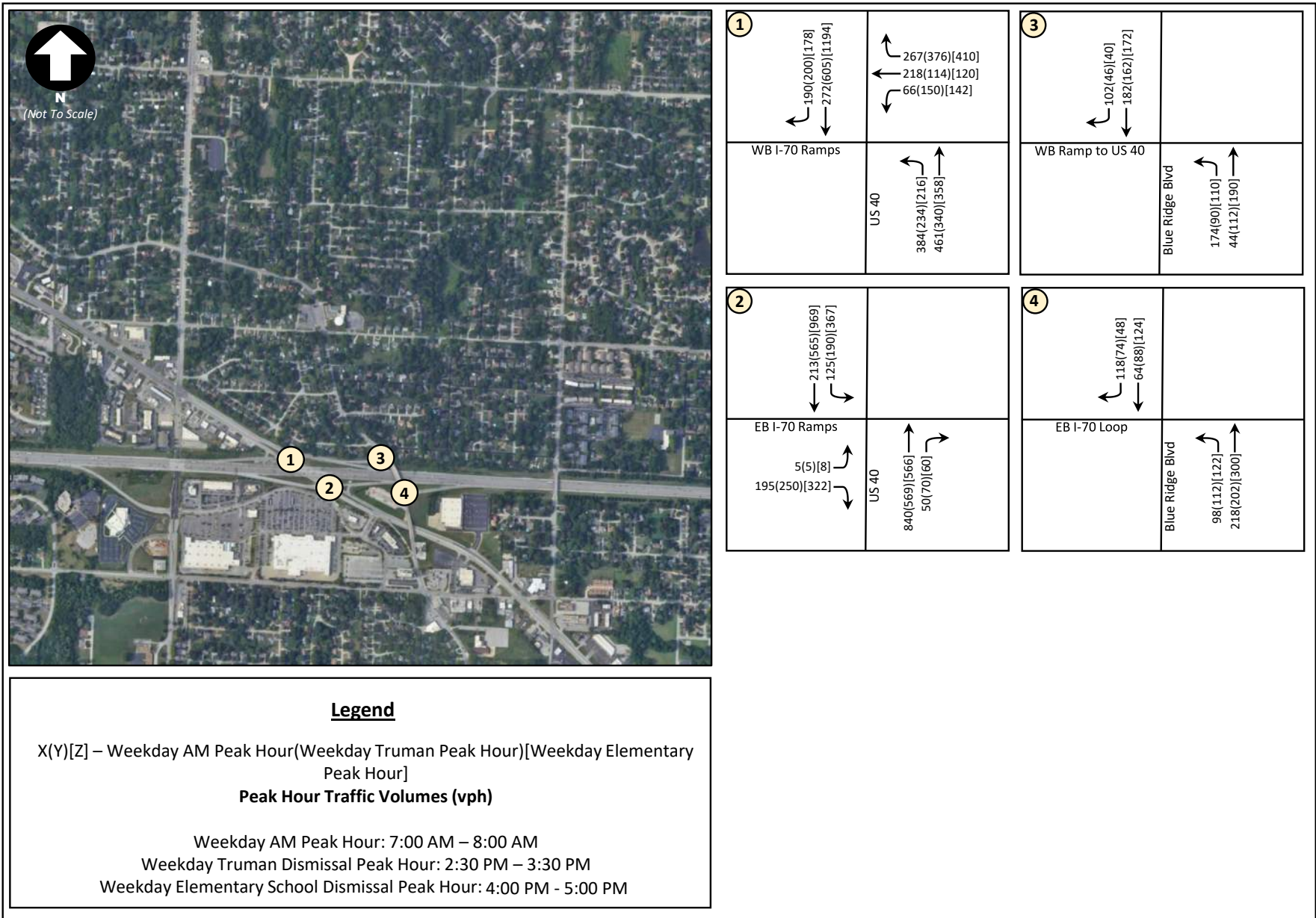
Appendix E – 2046 Forecasted Traffic Volumes

Appendix F – Preliminary Site Plans

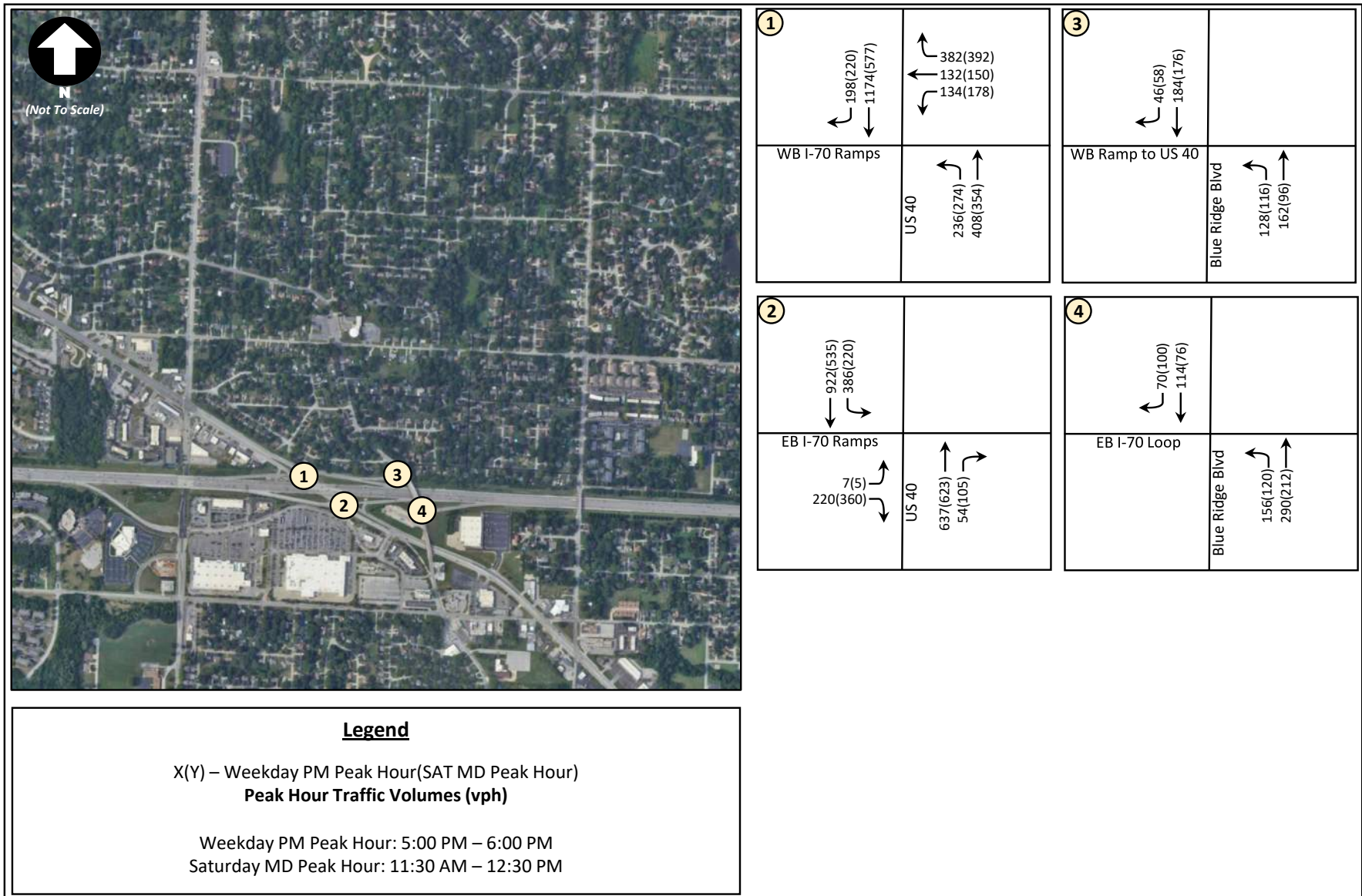
APPENDIX A – 2024 EXISTING TRAFFIC VOLUMES



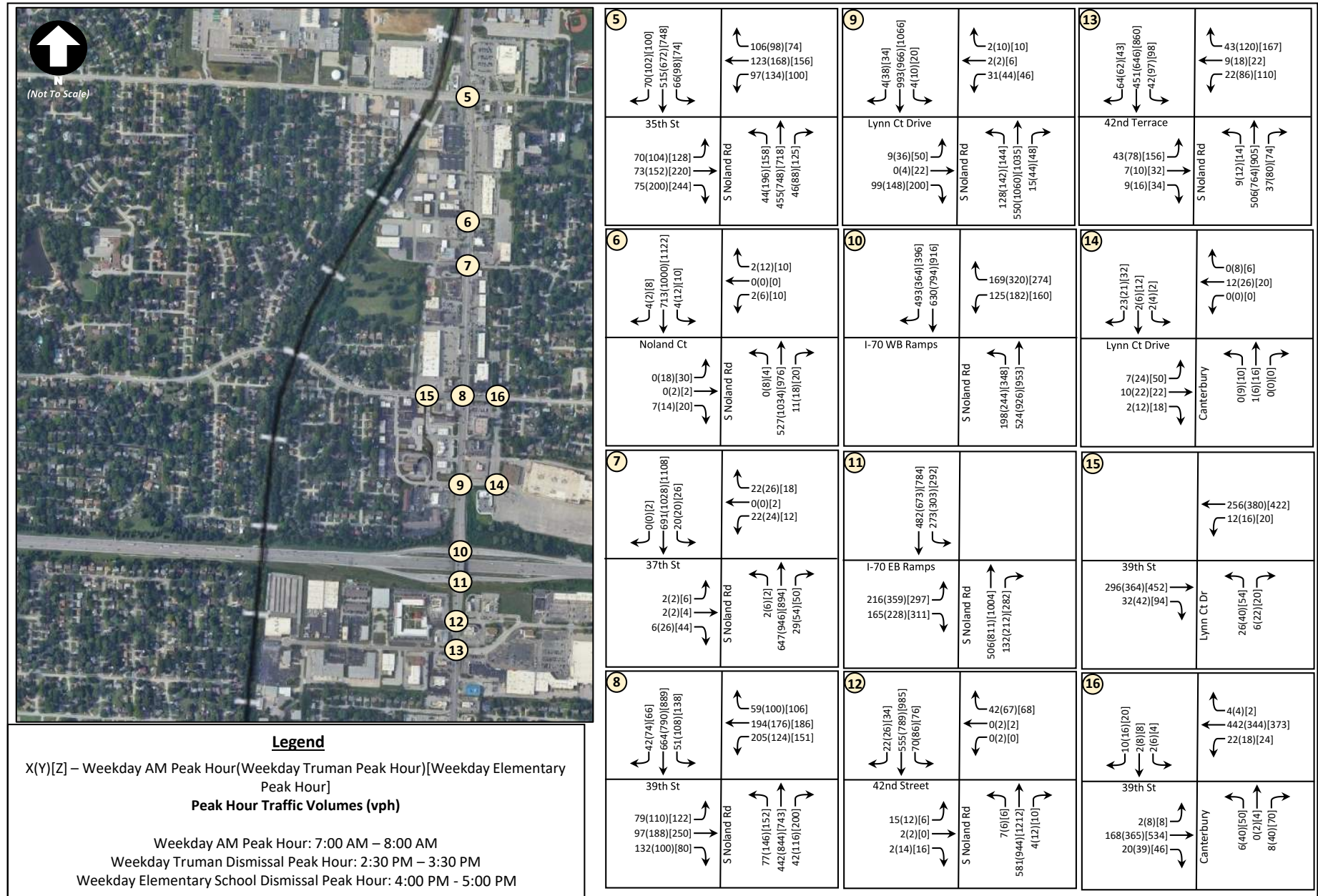
Existing Traffic Volumes – Overall Study Area



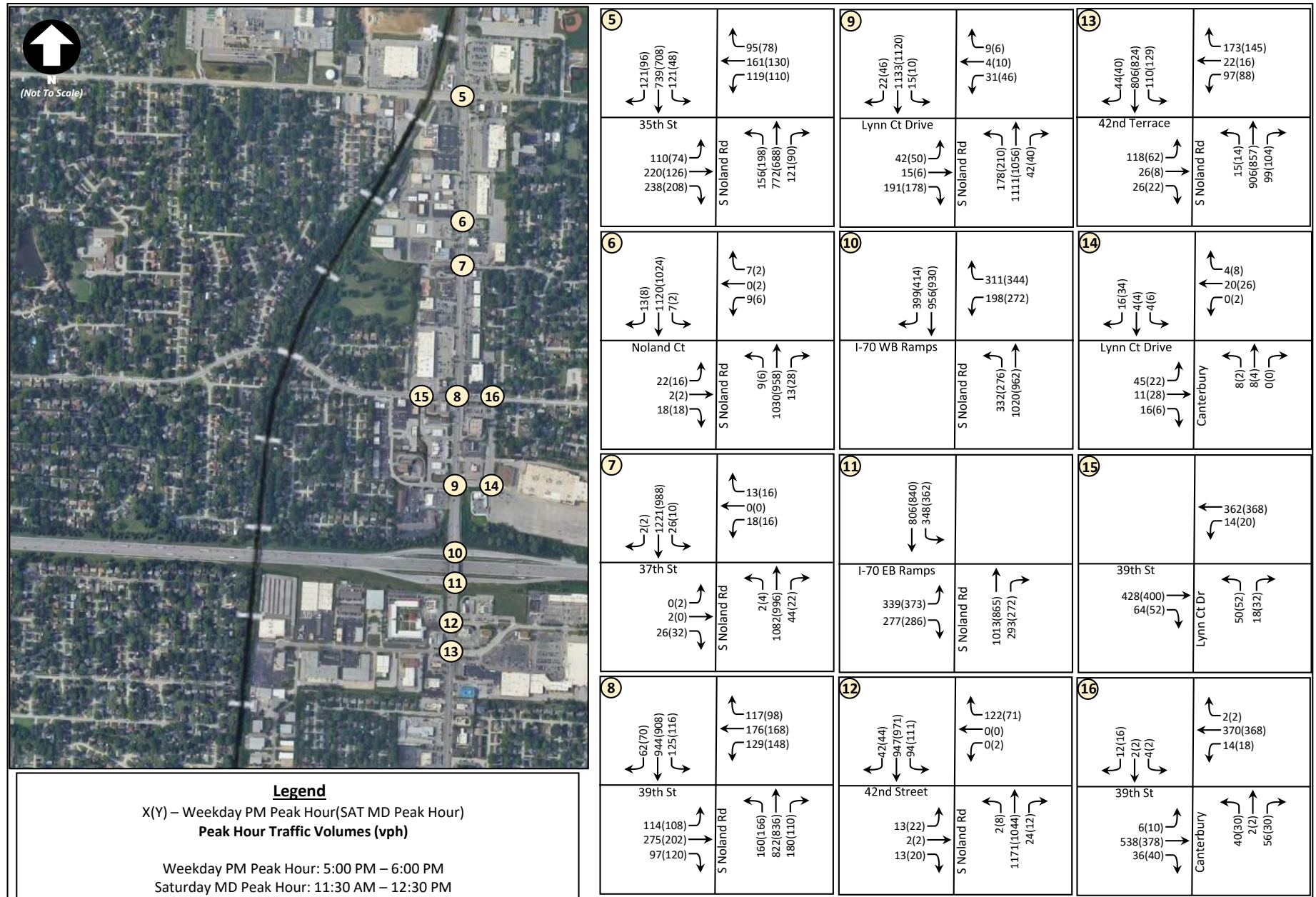
Existing Traffic Volumes – AM, Truman, Elementary Peak Hours (Sheet A-1)



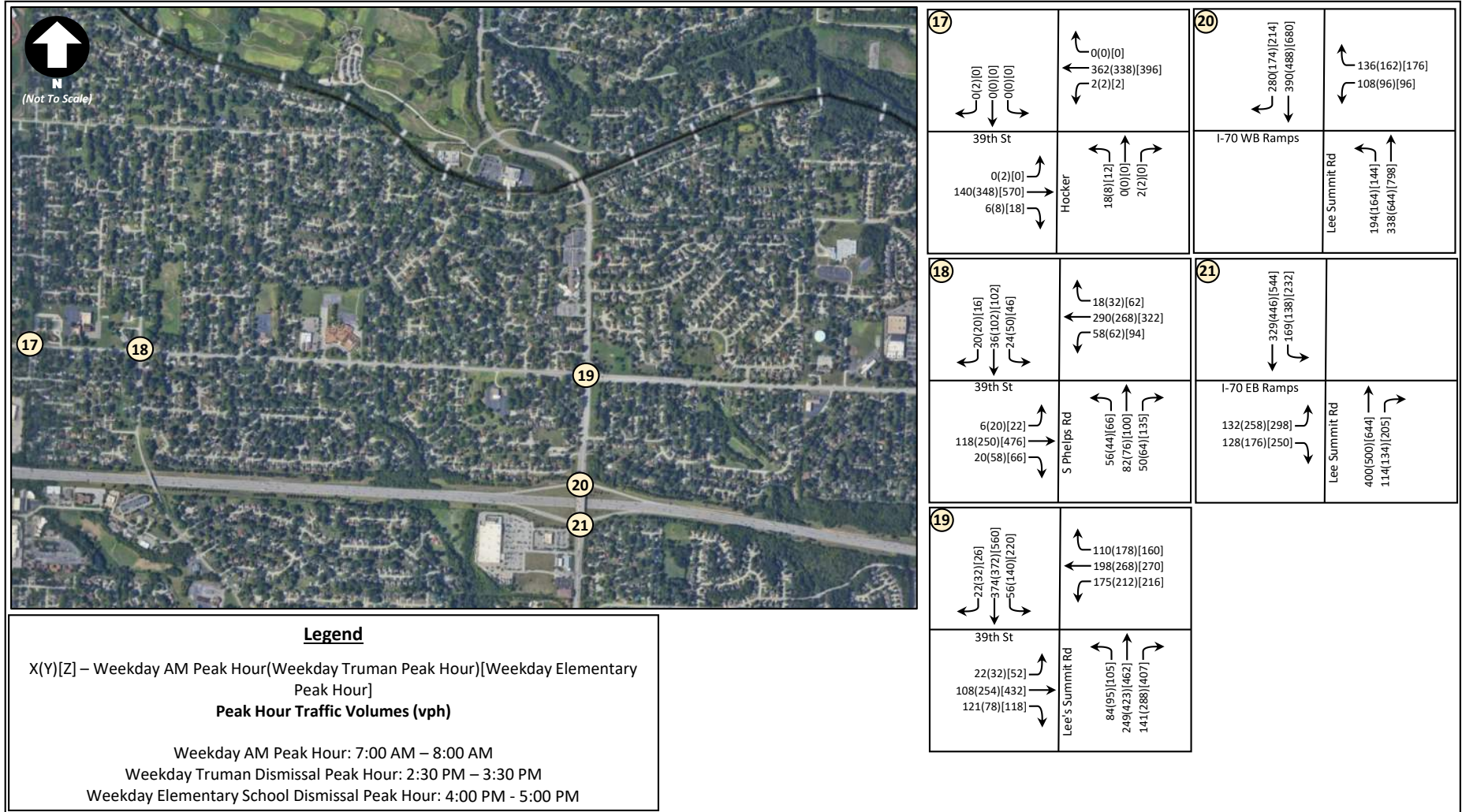
Existing Traffic Volumes – PM and Saturday Midday Peak Hours (Sheet A-2)



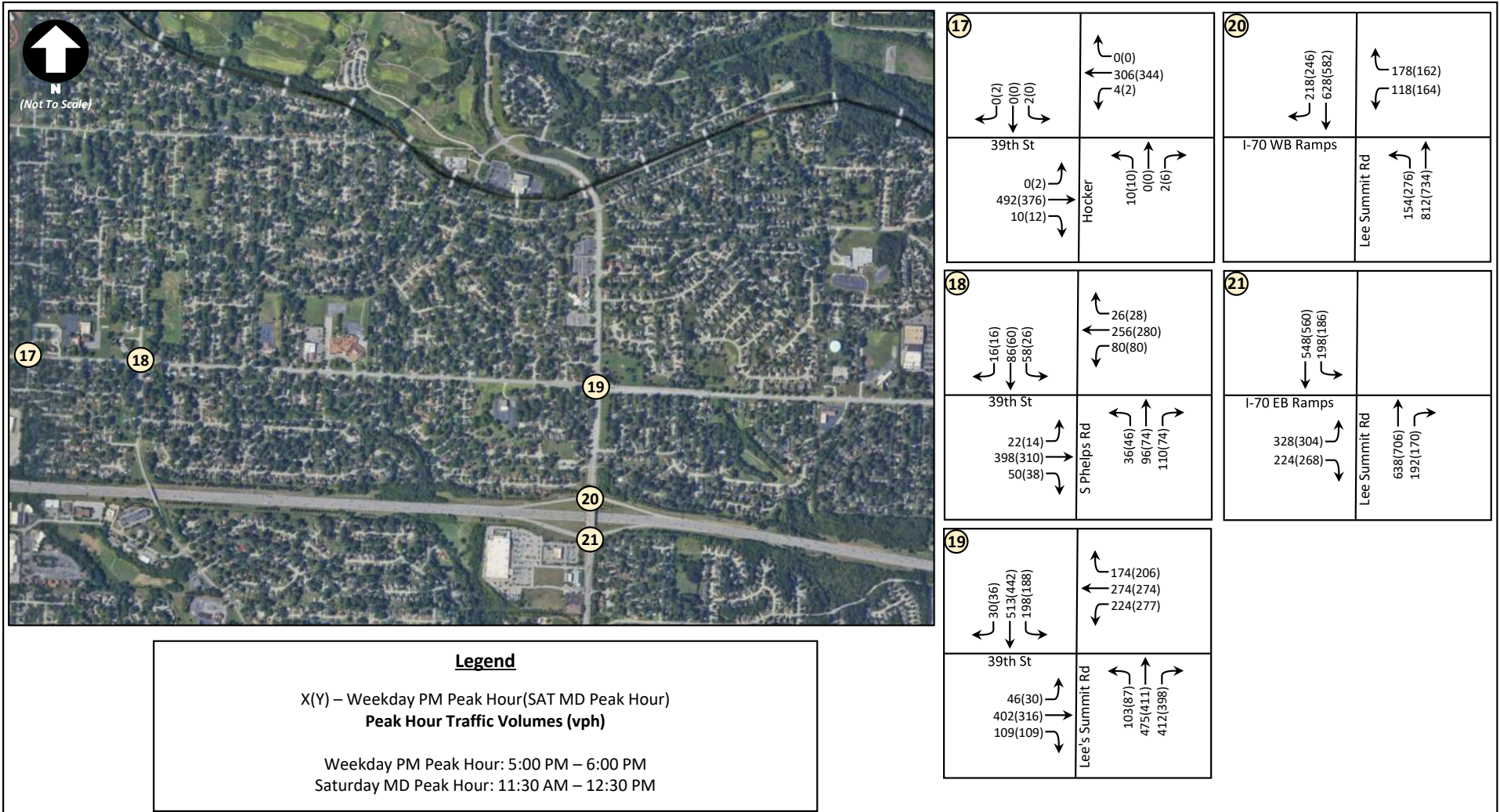
Existing Traffic Volumes – AM, Truman, Elementary Peak Hours (Sheet B-1)



Existing Traffic Volumes – PM and Saturday Midday Peak Hours (Sheet B-2)

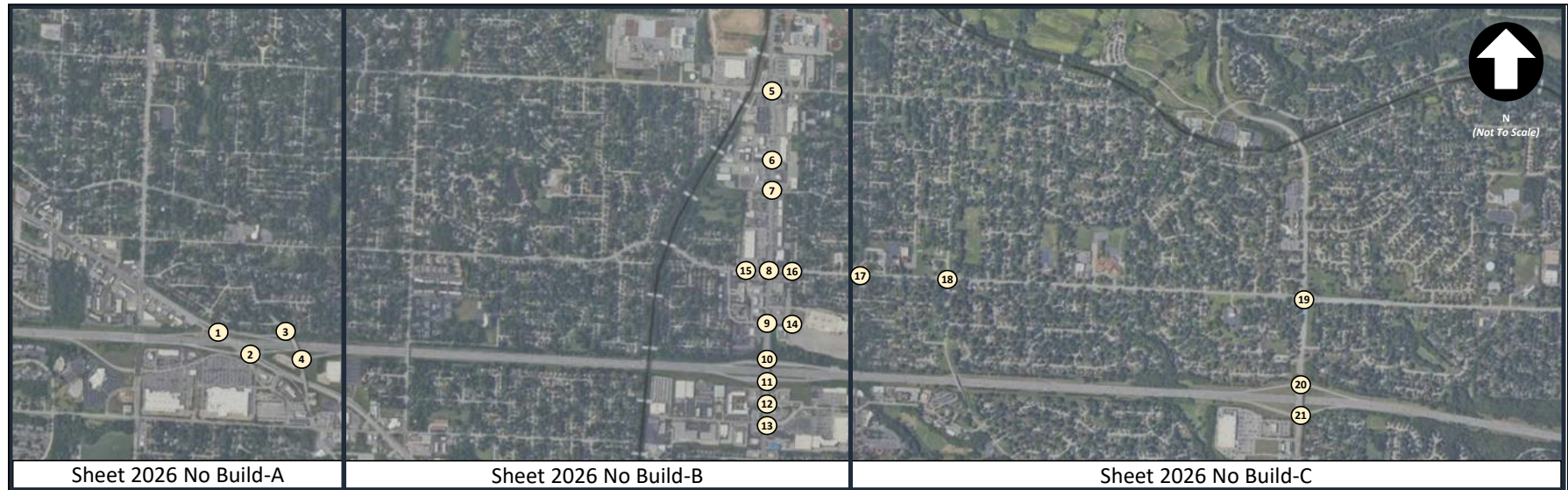


Existing Traffic Volumes – AM, Truman, Elementary Peak Hours (Sheet C-1)

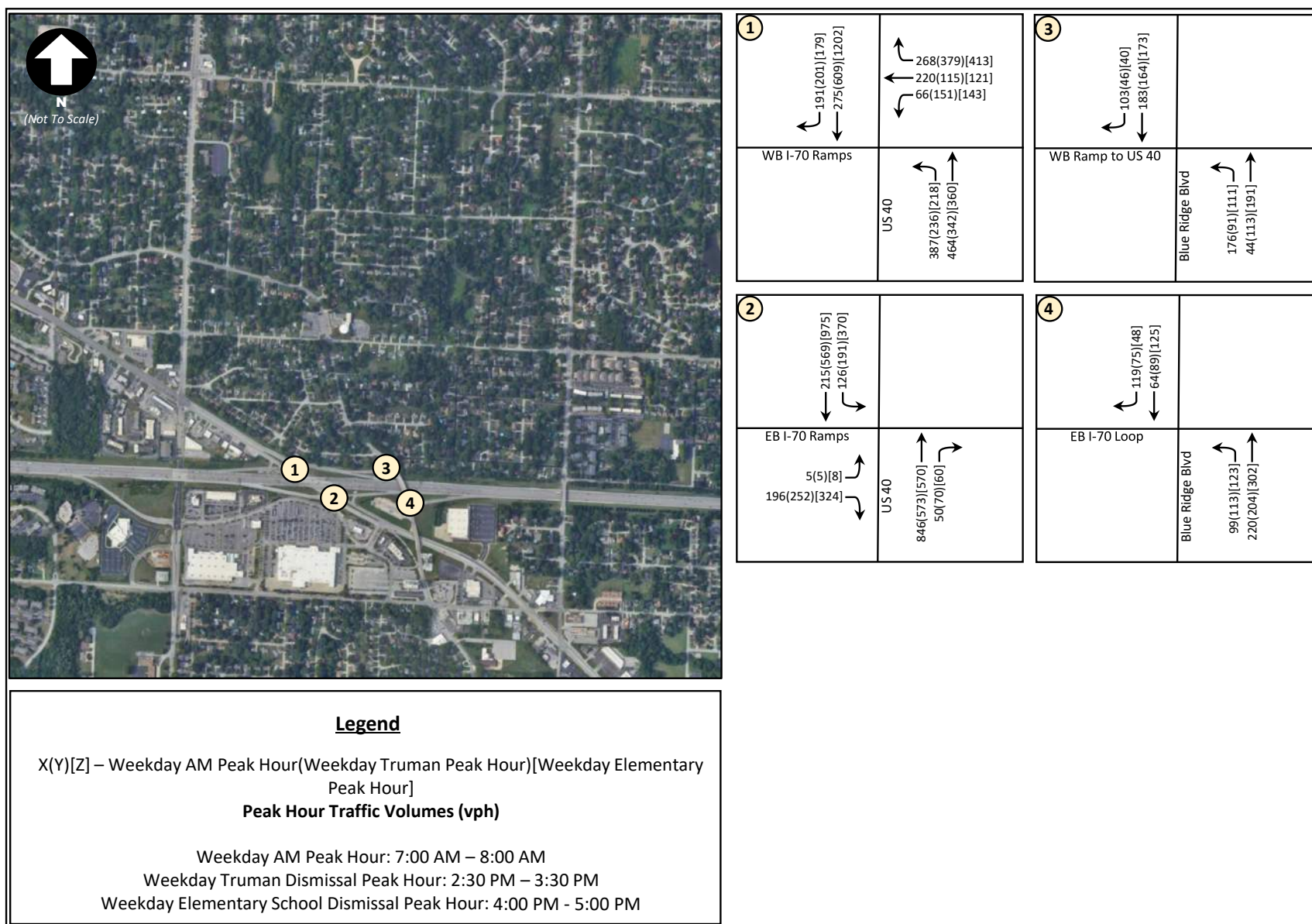


Existing Traffic Volumes – PM and Saturday Midday Peak Hours (Sheet C-2)

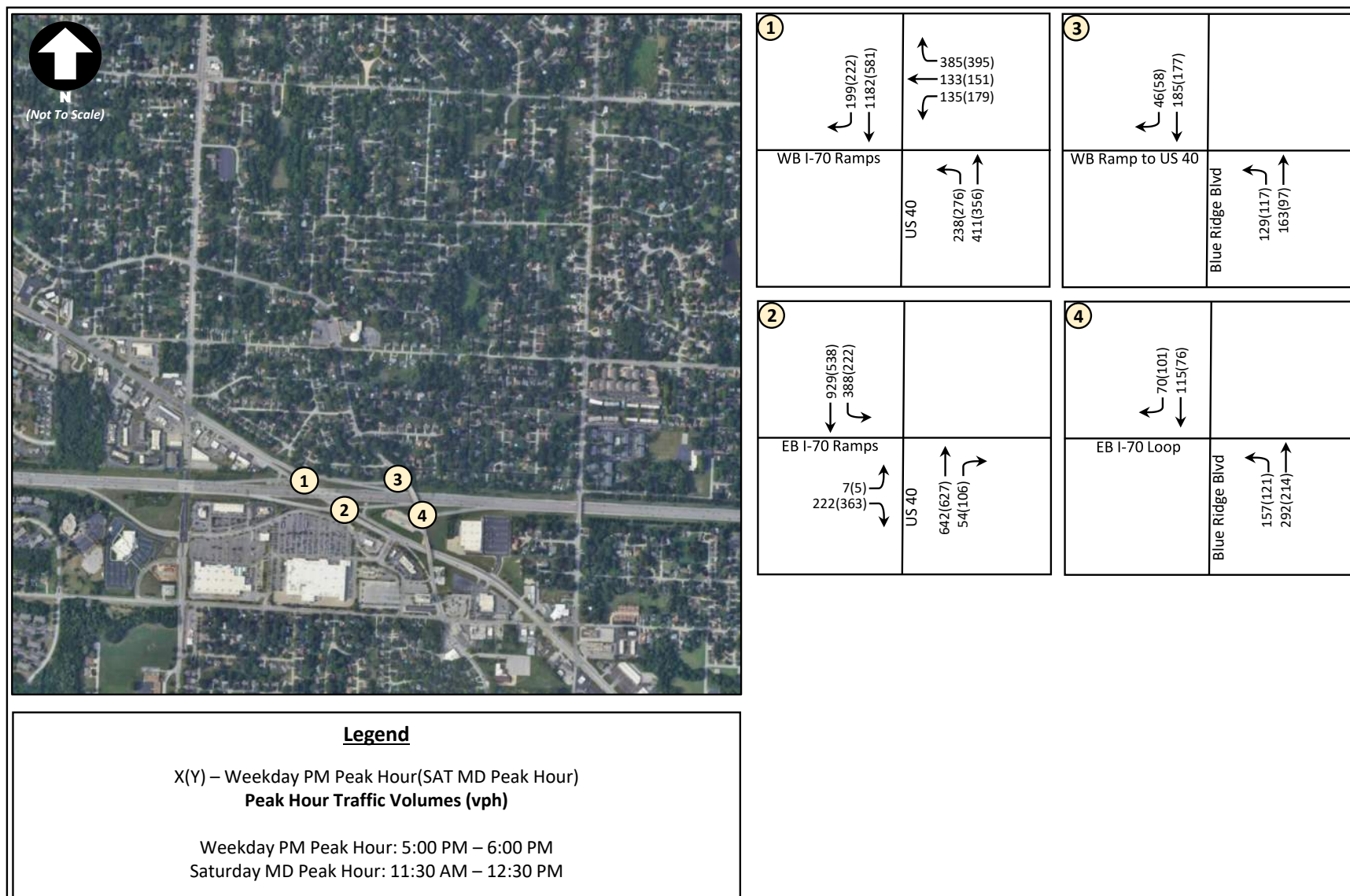
APPENDIX B – 2026 NO-BUILD TRAFFIC VOLUMES



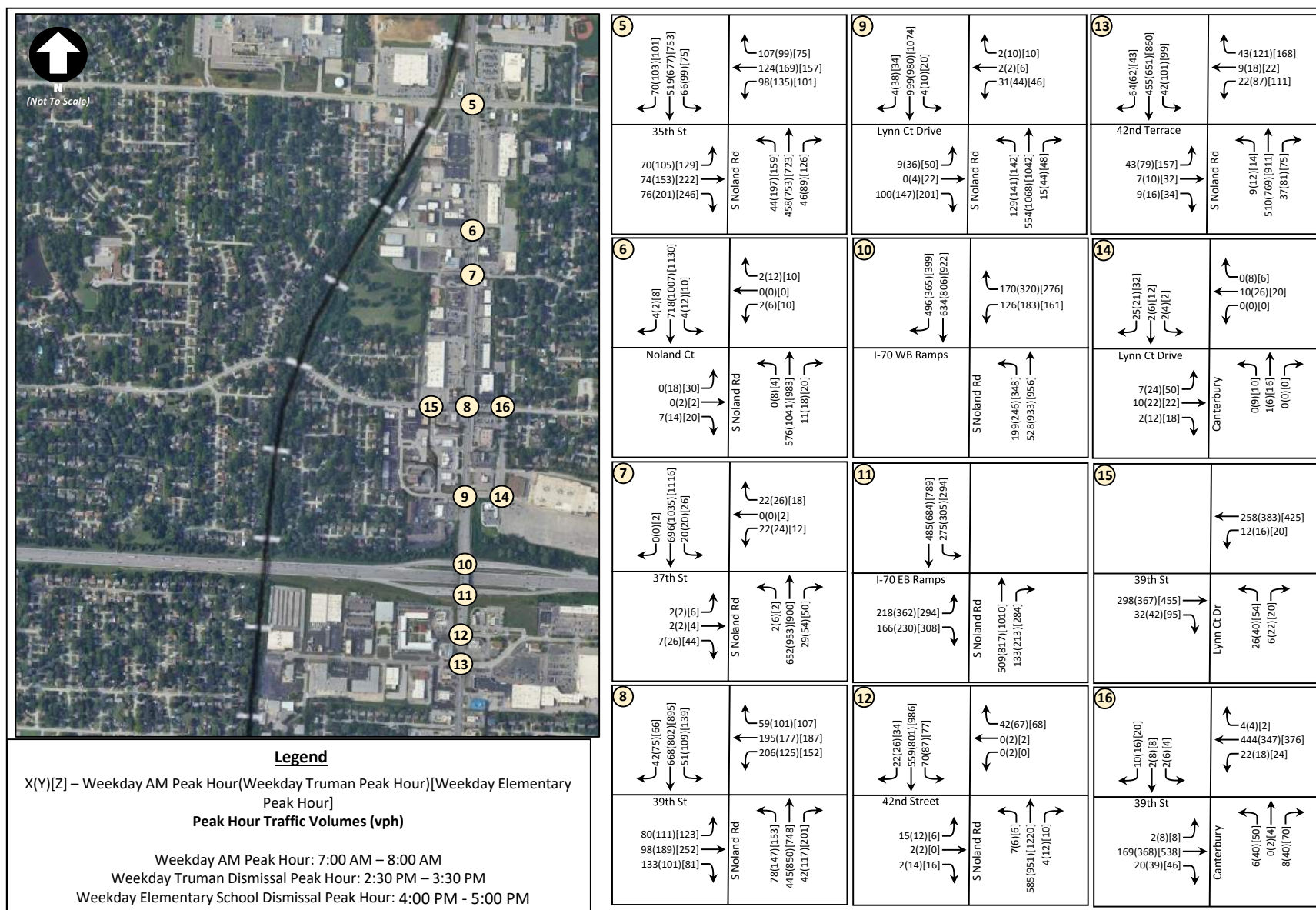
2026 No-Build Traffic Volumes – Overall Study Area



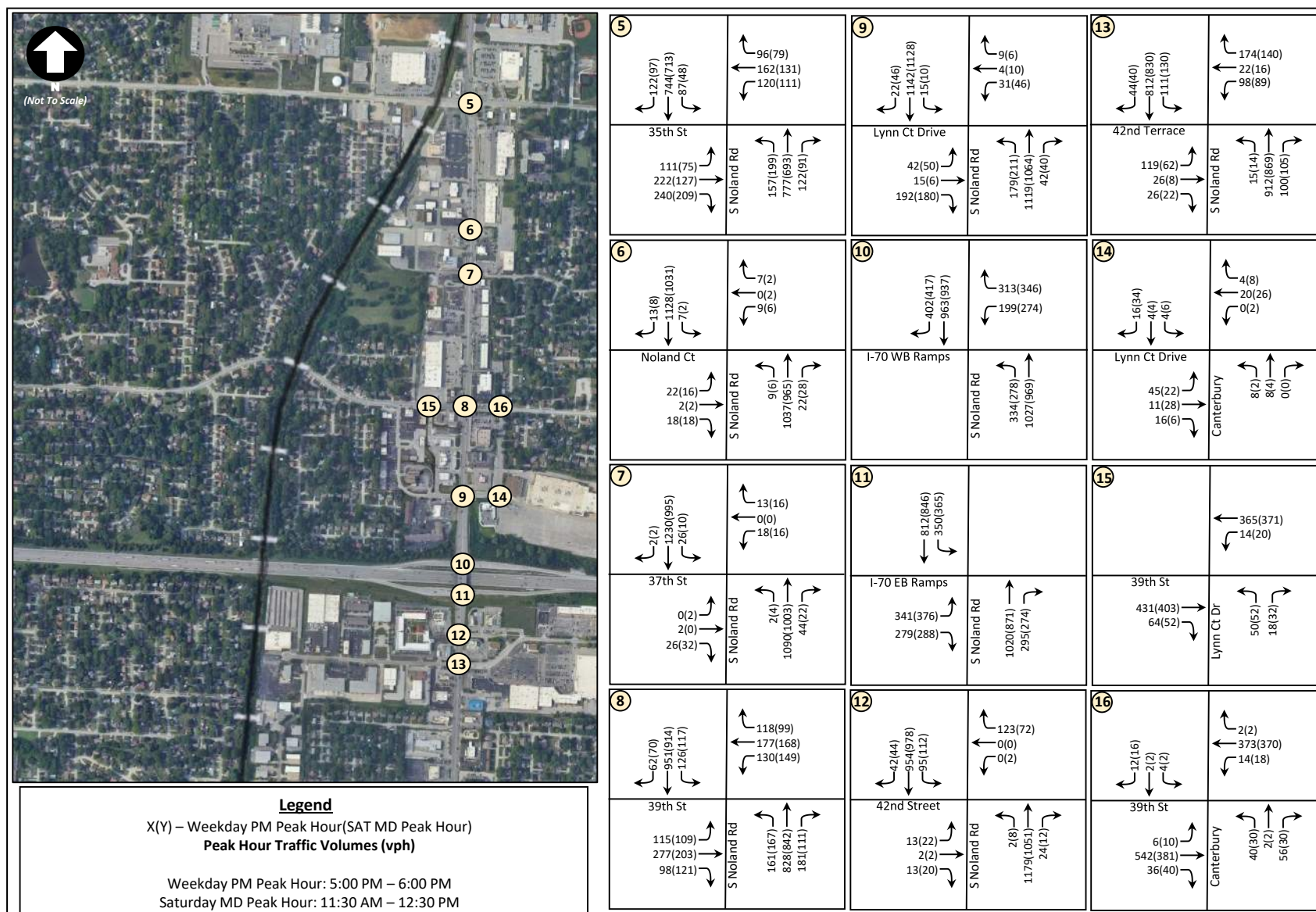
2026 No-Build Traffic Volumes - AM, Truman, Elementary Peak Hours (Sheet A-1)



2026 No-Build Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet A-2)



2026 No-Build Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet B-1)



2026 No-Build Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet B-2)

$$X(Y)[Z] - \text{Weekday AM Peak Hour}(\text{Weekday Truman Peak Hour})[\text{Weekday Elementary Peak Hour}]$$

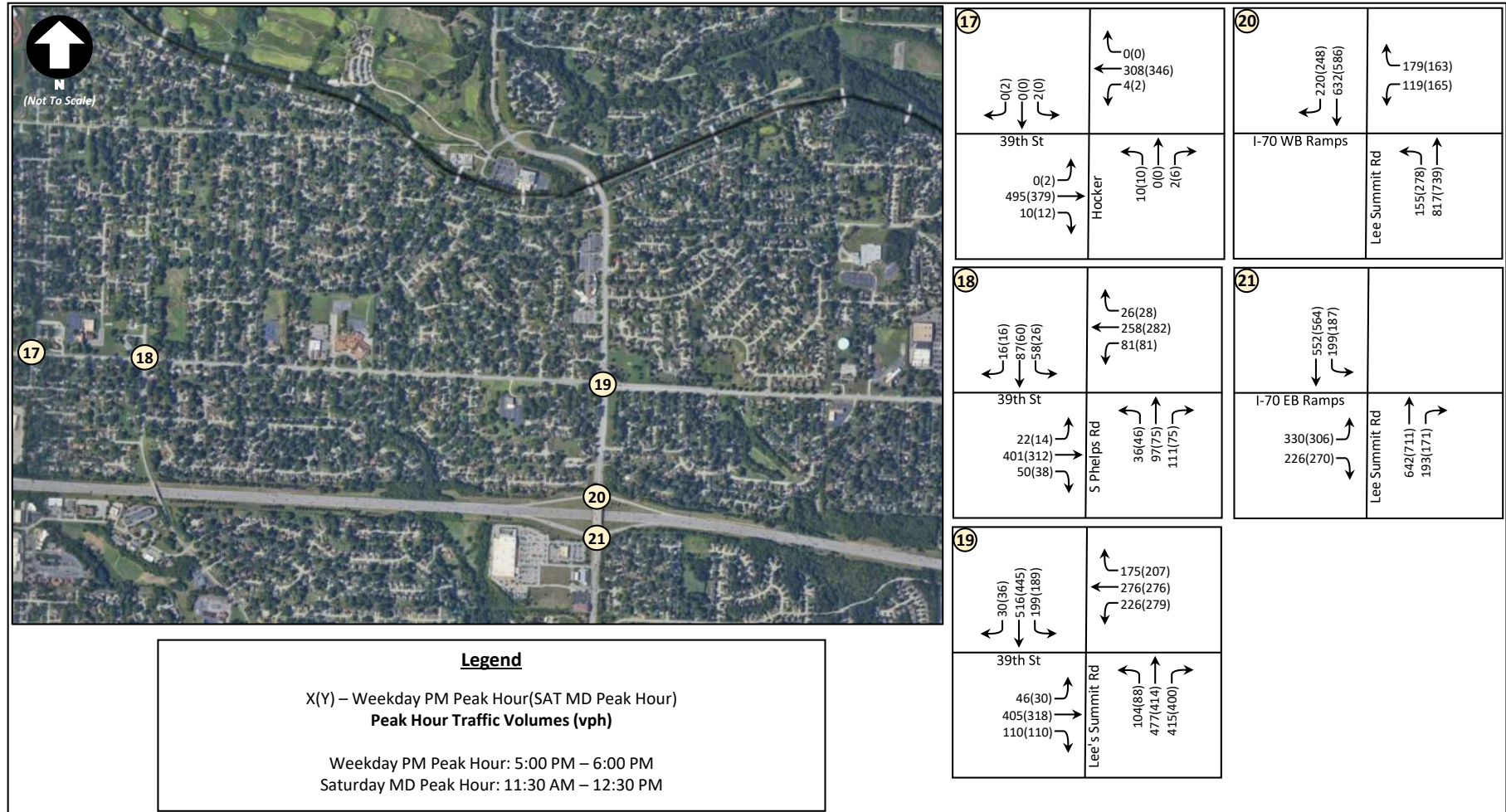
Weekday AM Peak Hour: 7:00 AM – 8:00 AM

Weekday Truman Dismissal Peak Hour: 2:30 PM – 3:30 PM

Weekday Elementary School Dismissal Peak Hour: 4:00 PM - 5:00 PM

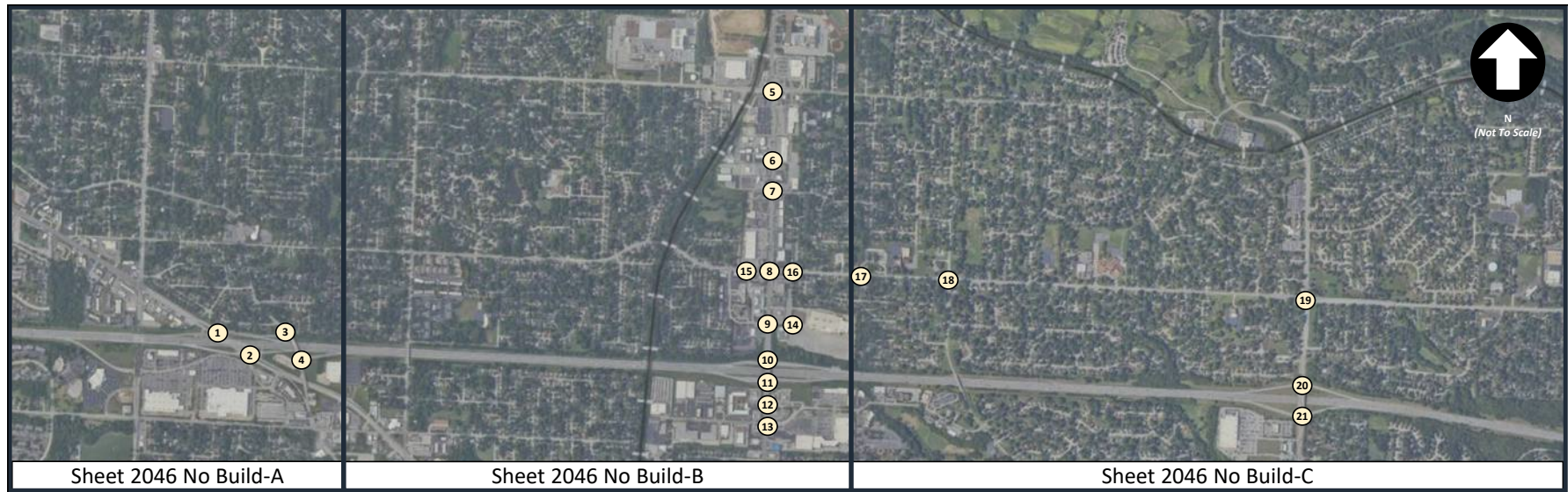
17 39th St Hocker	20 I-70 WB Ramps Lee Summit Rd
18 39th St S Phelps Rd	21 I-70 EB Ramps Lee Summit Rd
19 39th St Lee's Summit Rd	22 I-70 WB Ramps Lee Summit Rd

WALLY'S INDEPENDENCE TRAFFIC IMPACT STUDY

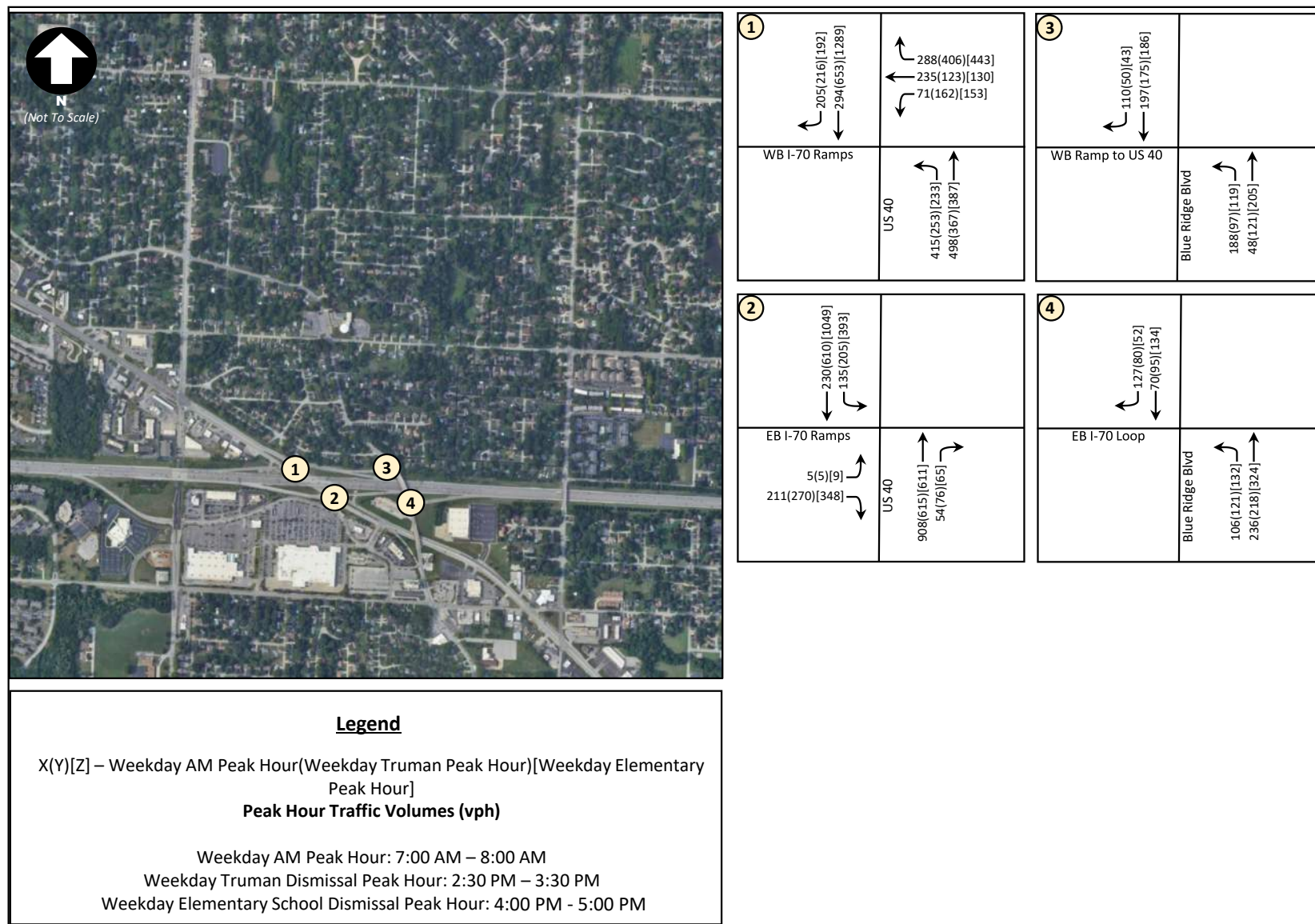


2026 No-Build Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet C-2)

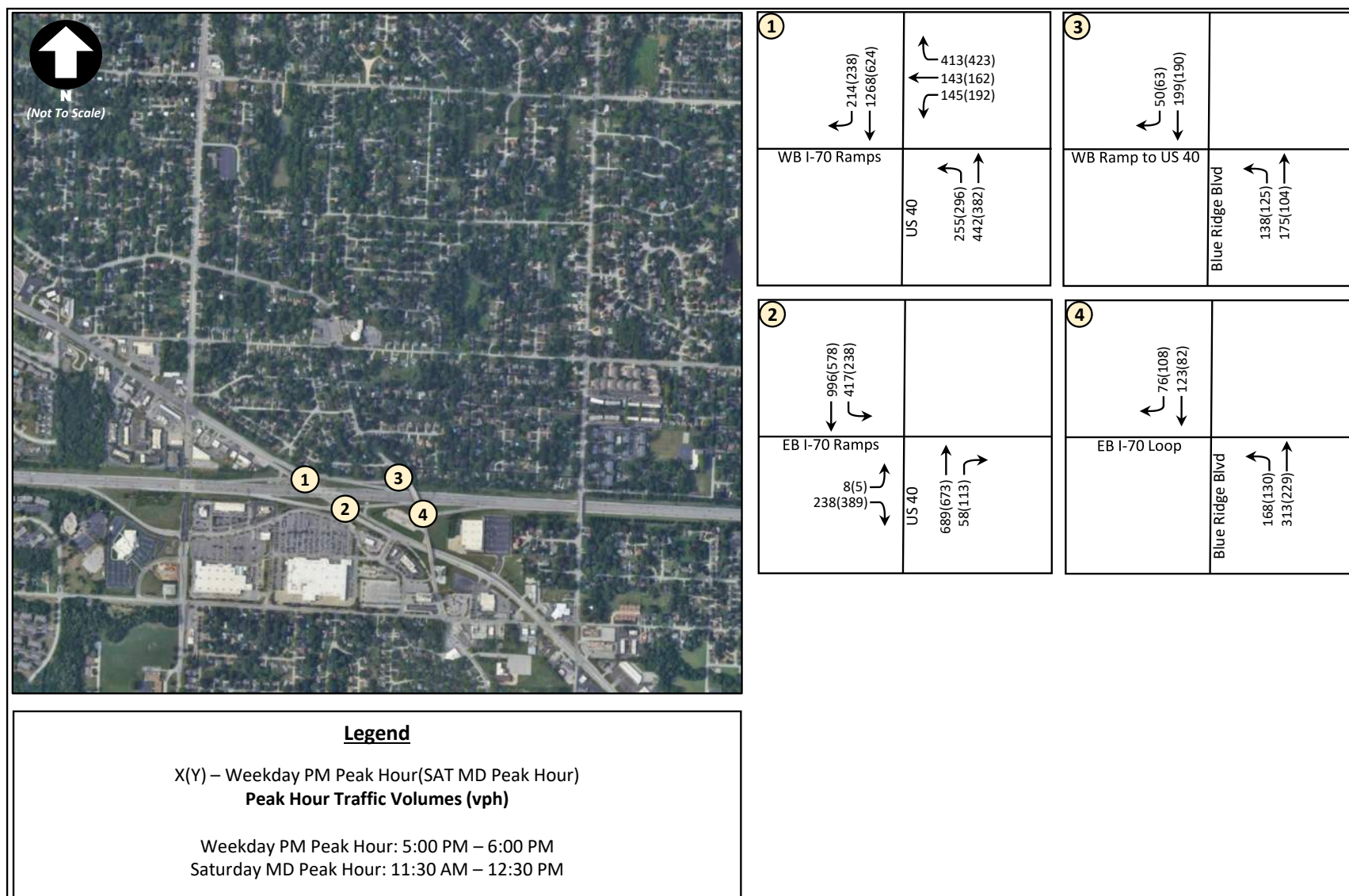
APPENDIX C – 2046 NO-BUILD TRAFFIC VOLUMES



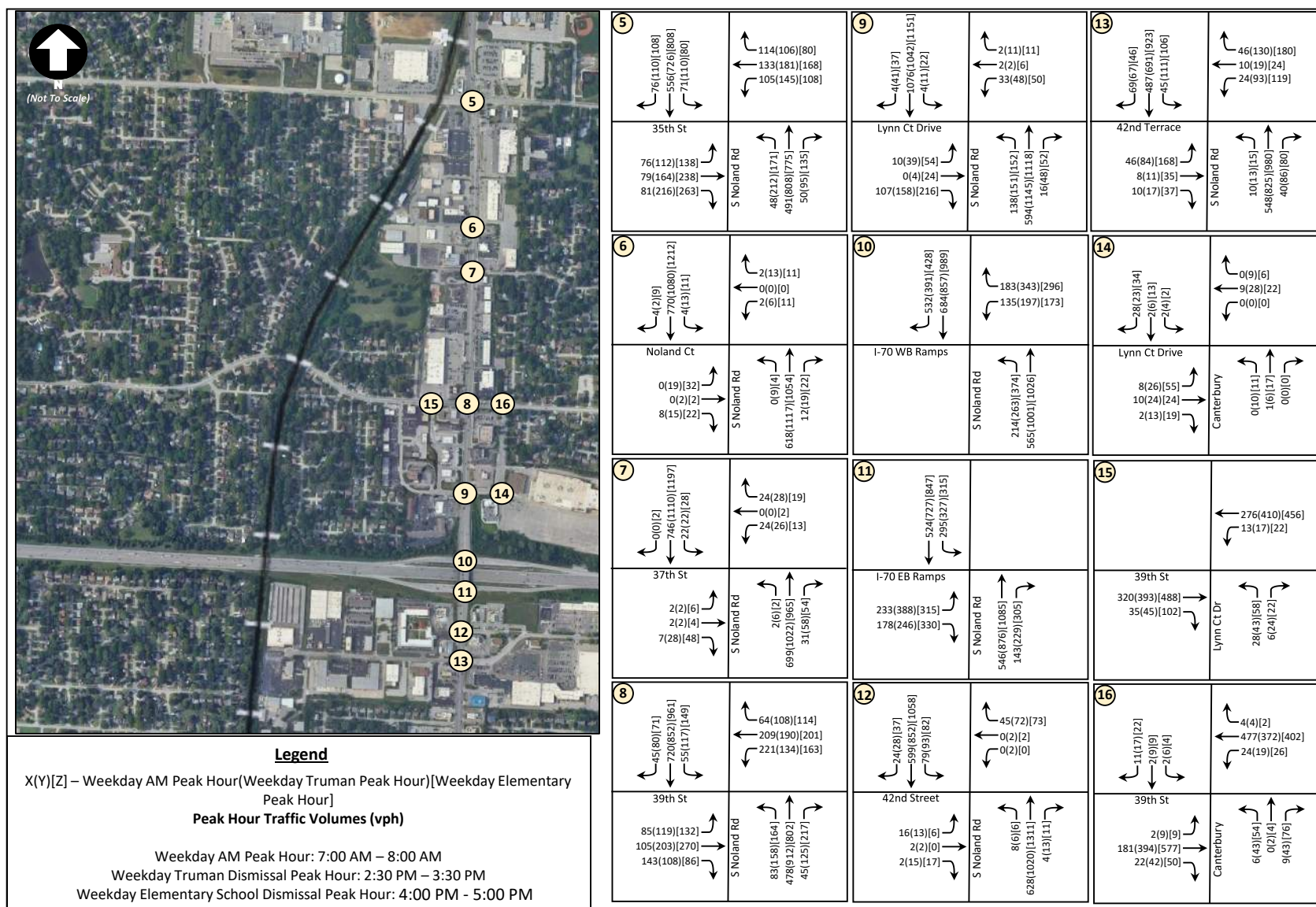
2046 No-Build Traffic Volumes – Overall Study Area



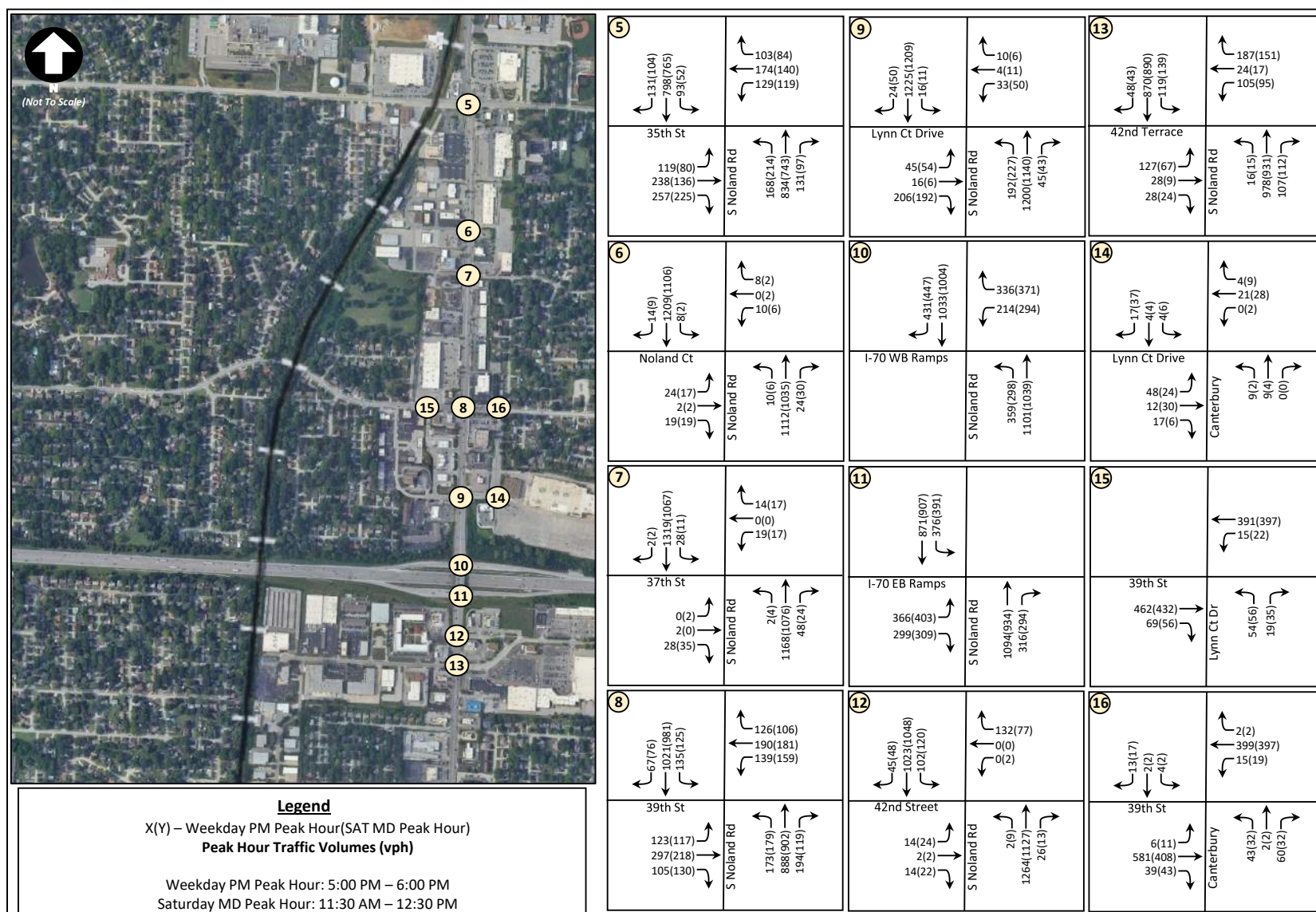
2046 No-Build Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet A-1)



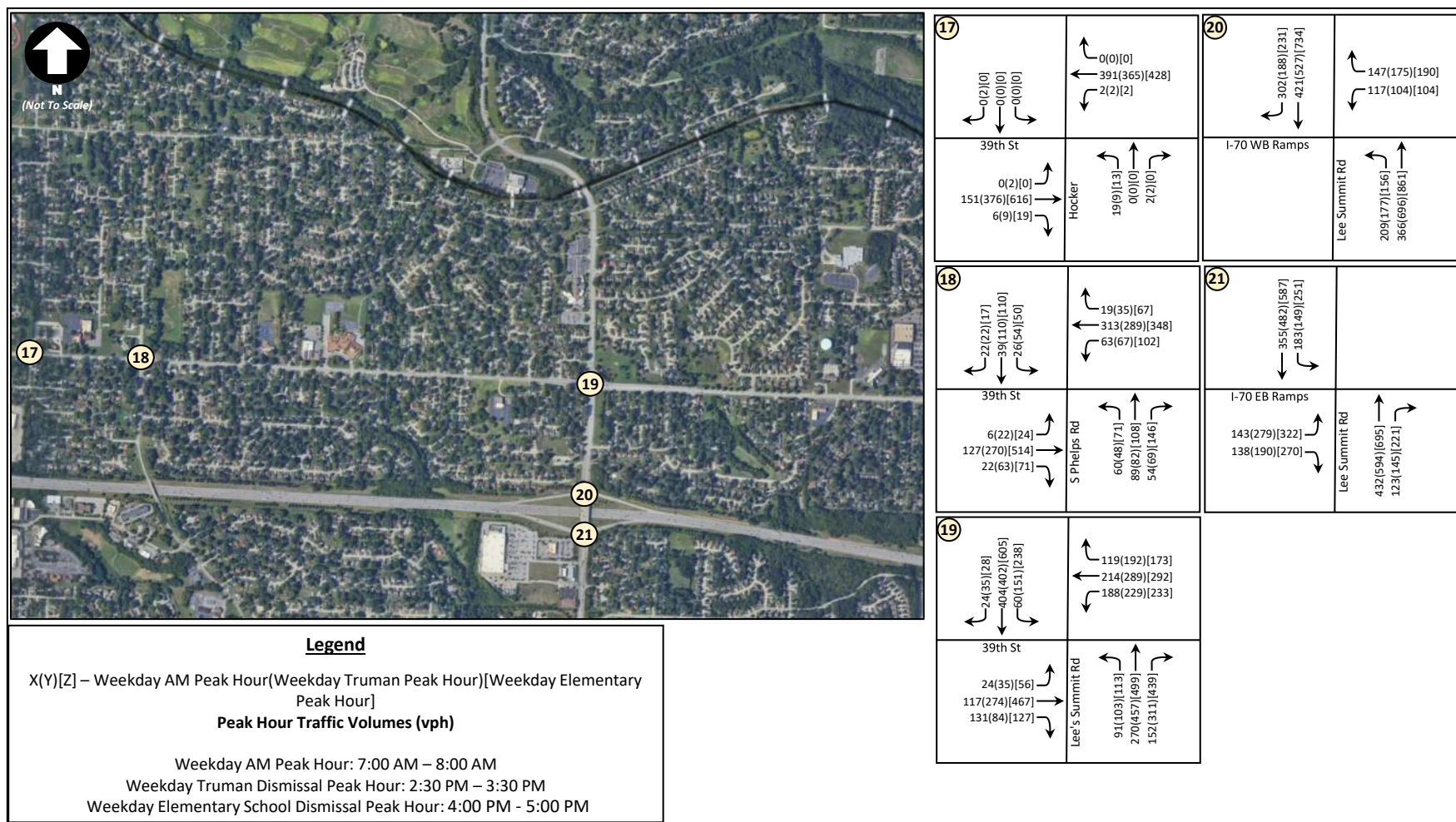
2046 No-Build Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet A-2)



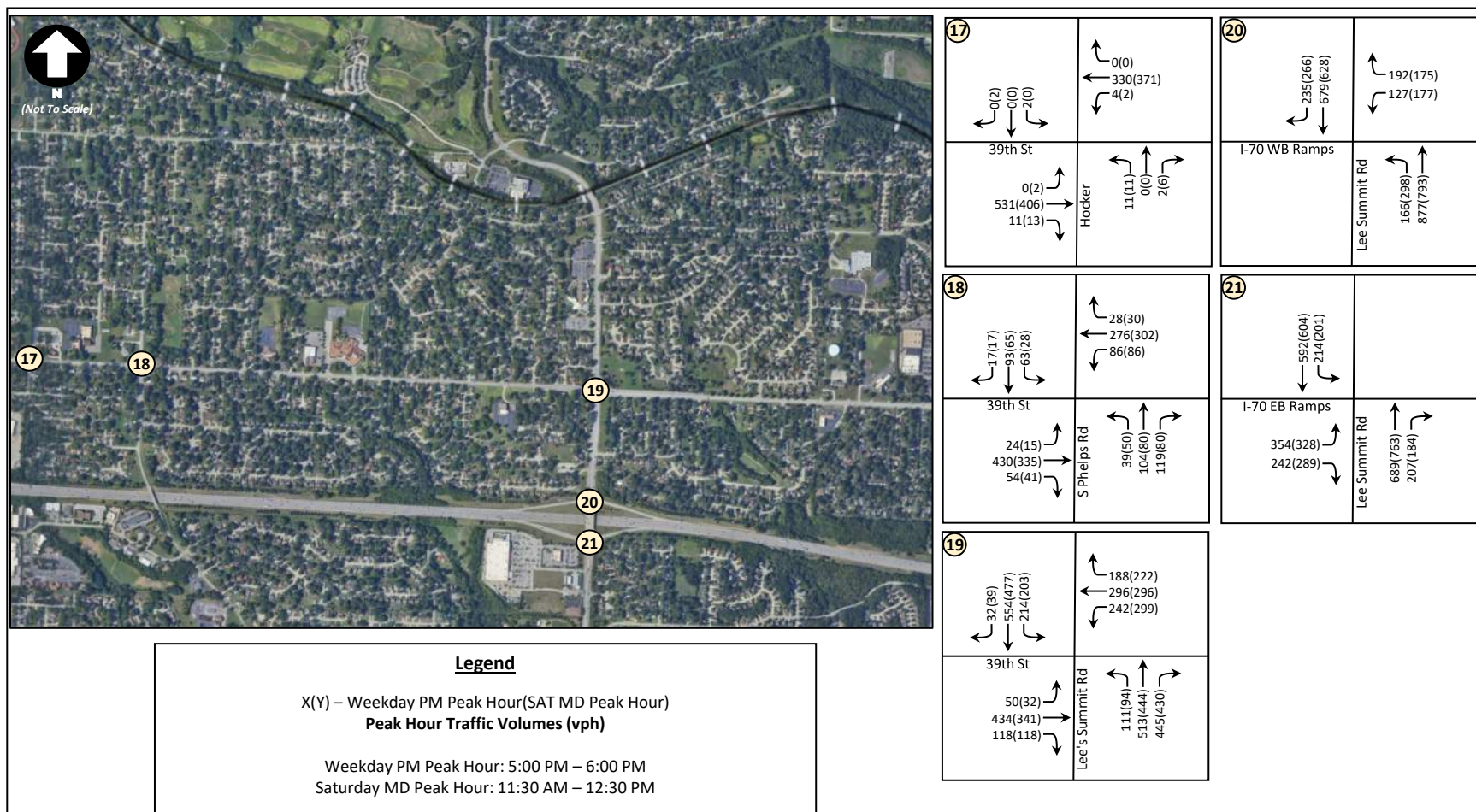
2046 No-Build Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet B-1)



2046 No-Build Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet B-2)



2046 No-Build Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet C-1)

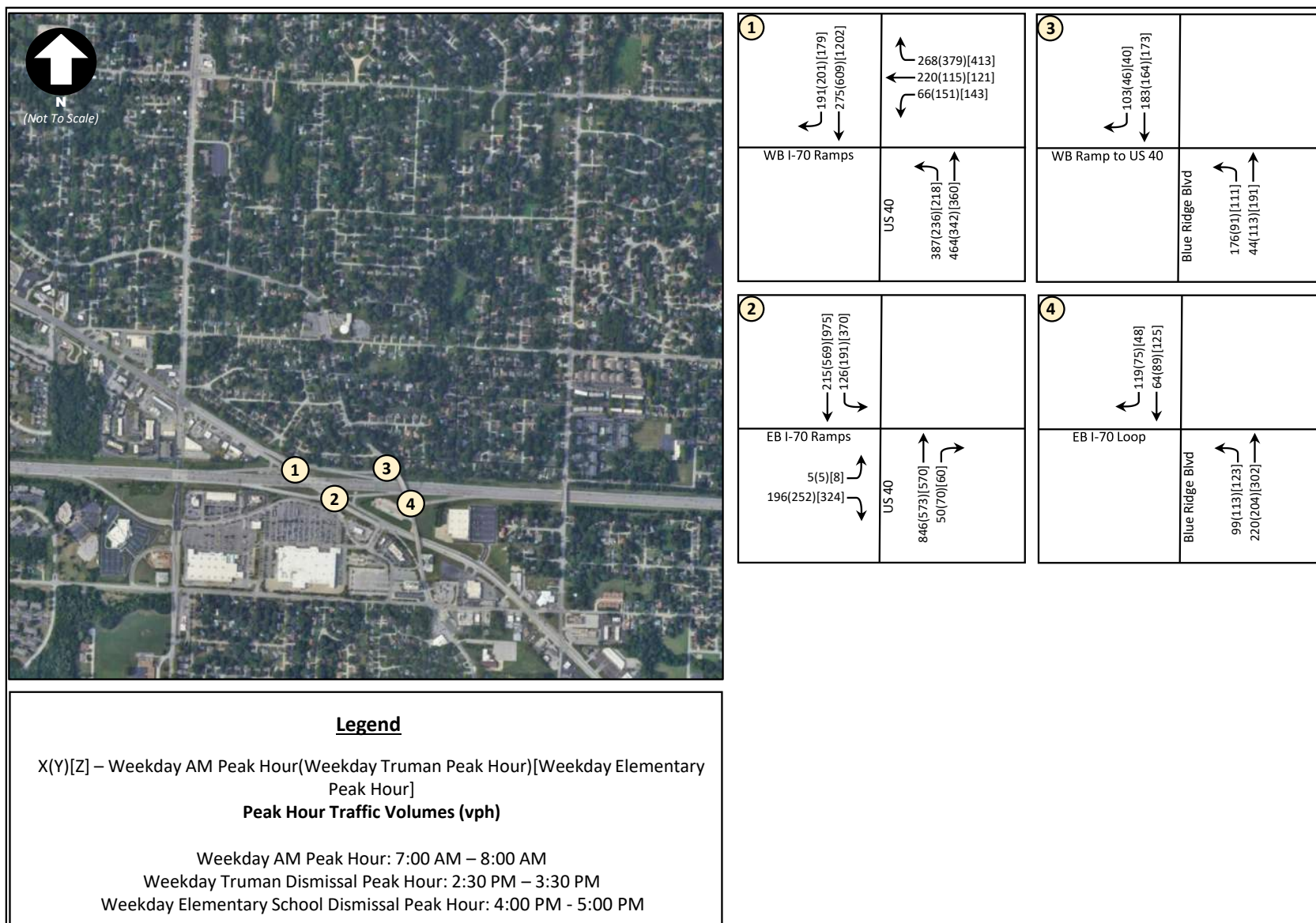


2046 No-Build Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet C-2)

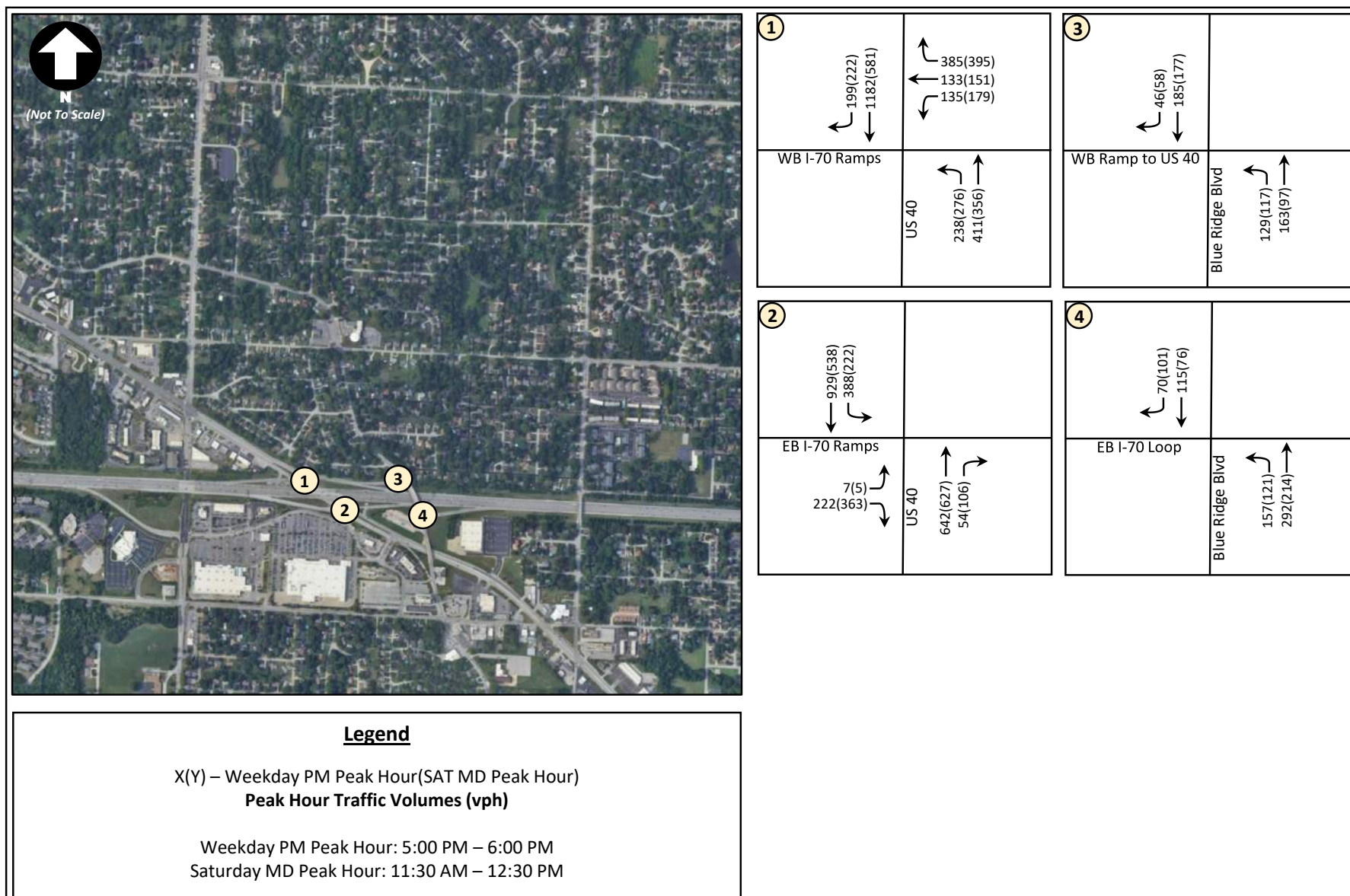
APPENDIX D – 2026 FORECASTED TRAFFIC VOLUMES



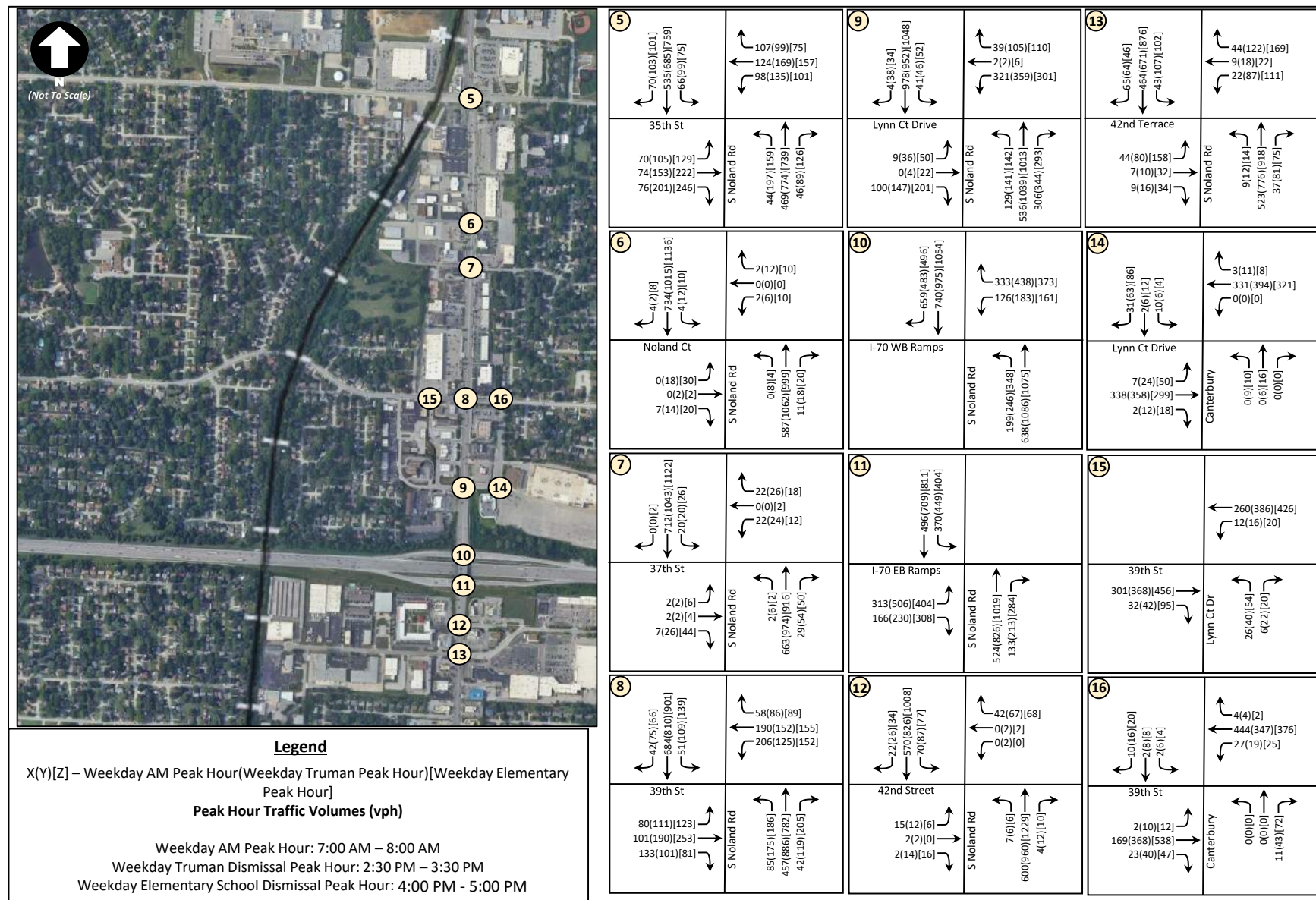
2026 Forecasted Traffic Volumes – Overall Study Area



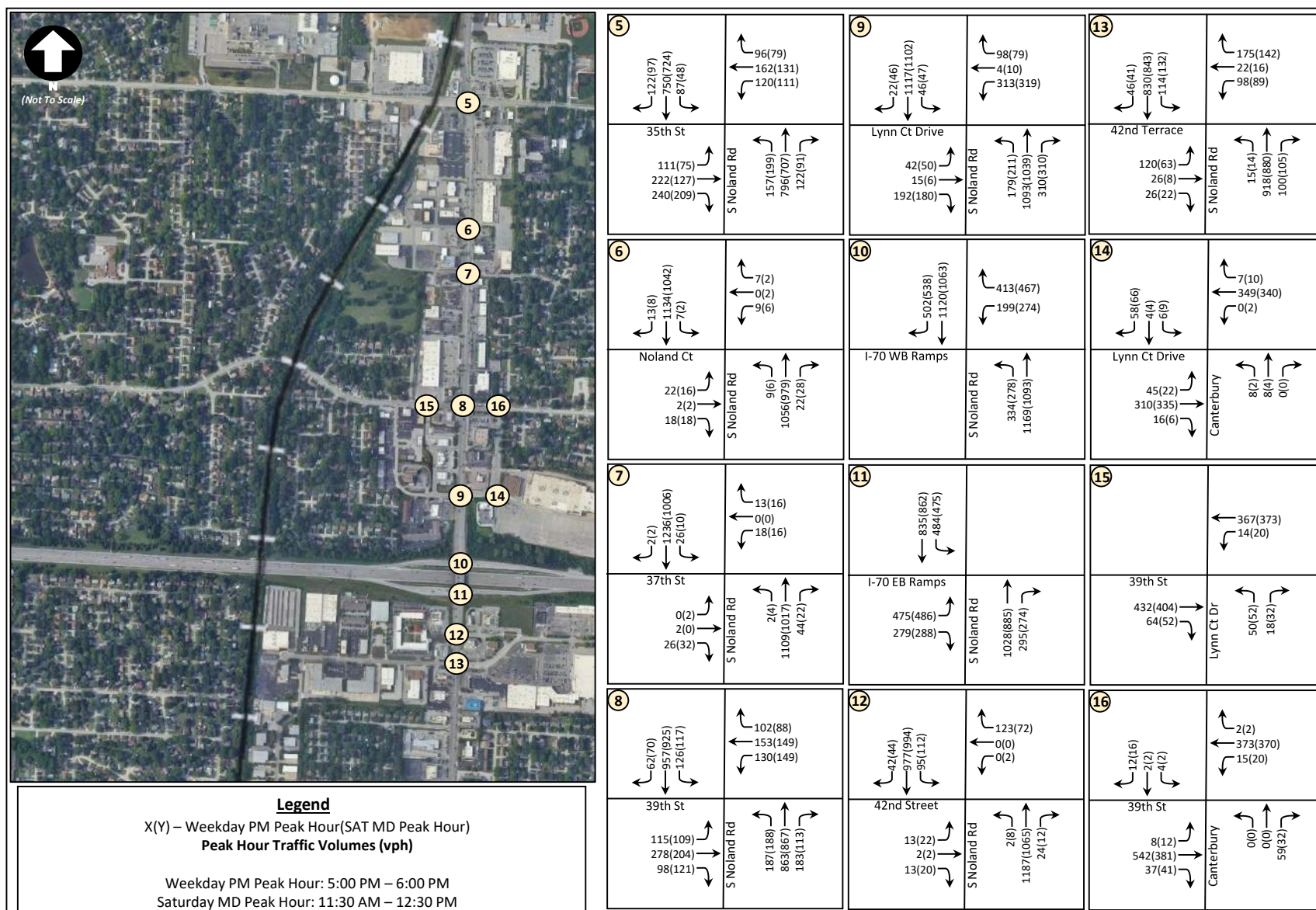
2026 Forecasted Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet A-1)



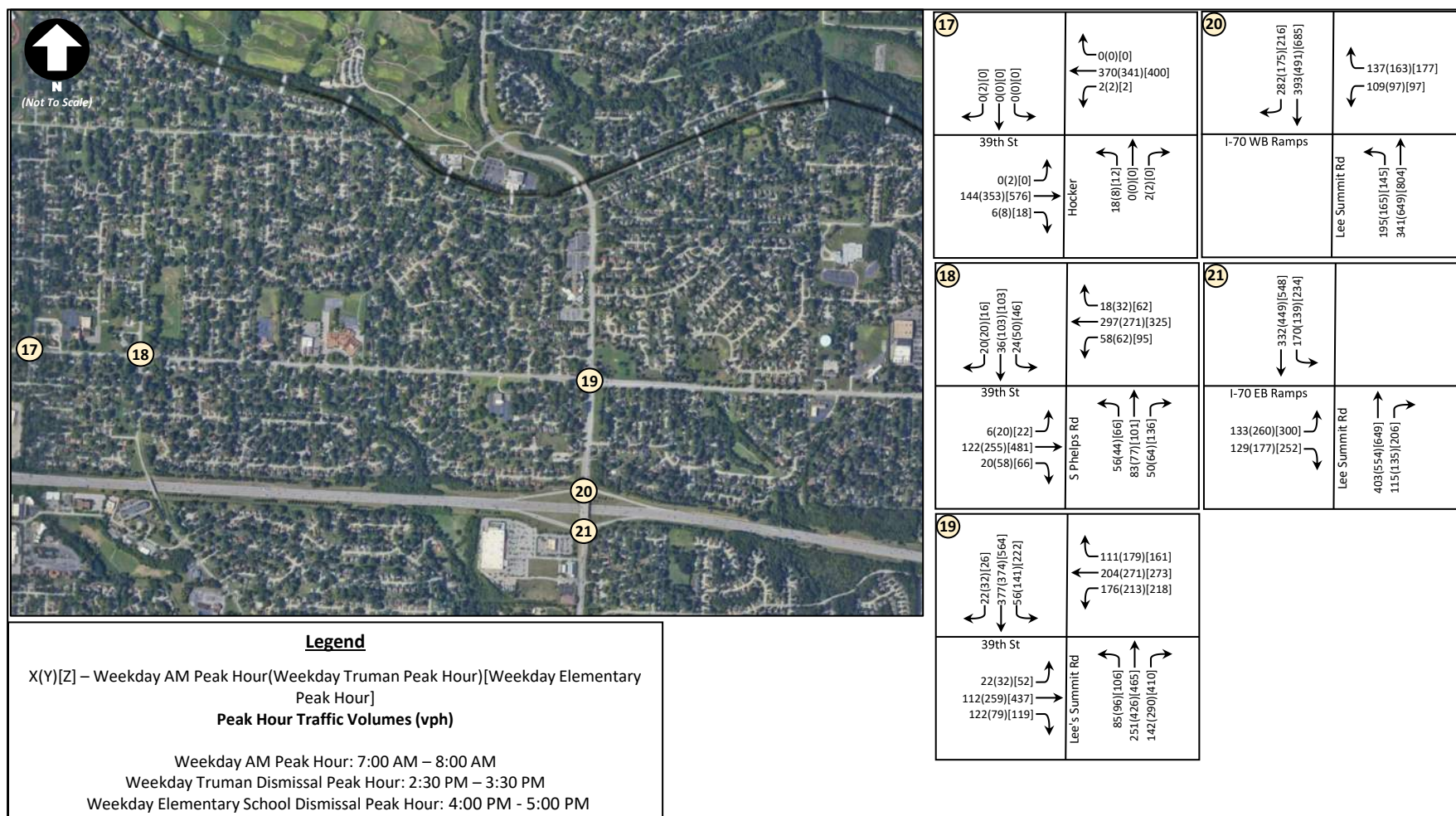
2026 Forecasted Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet A-2)



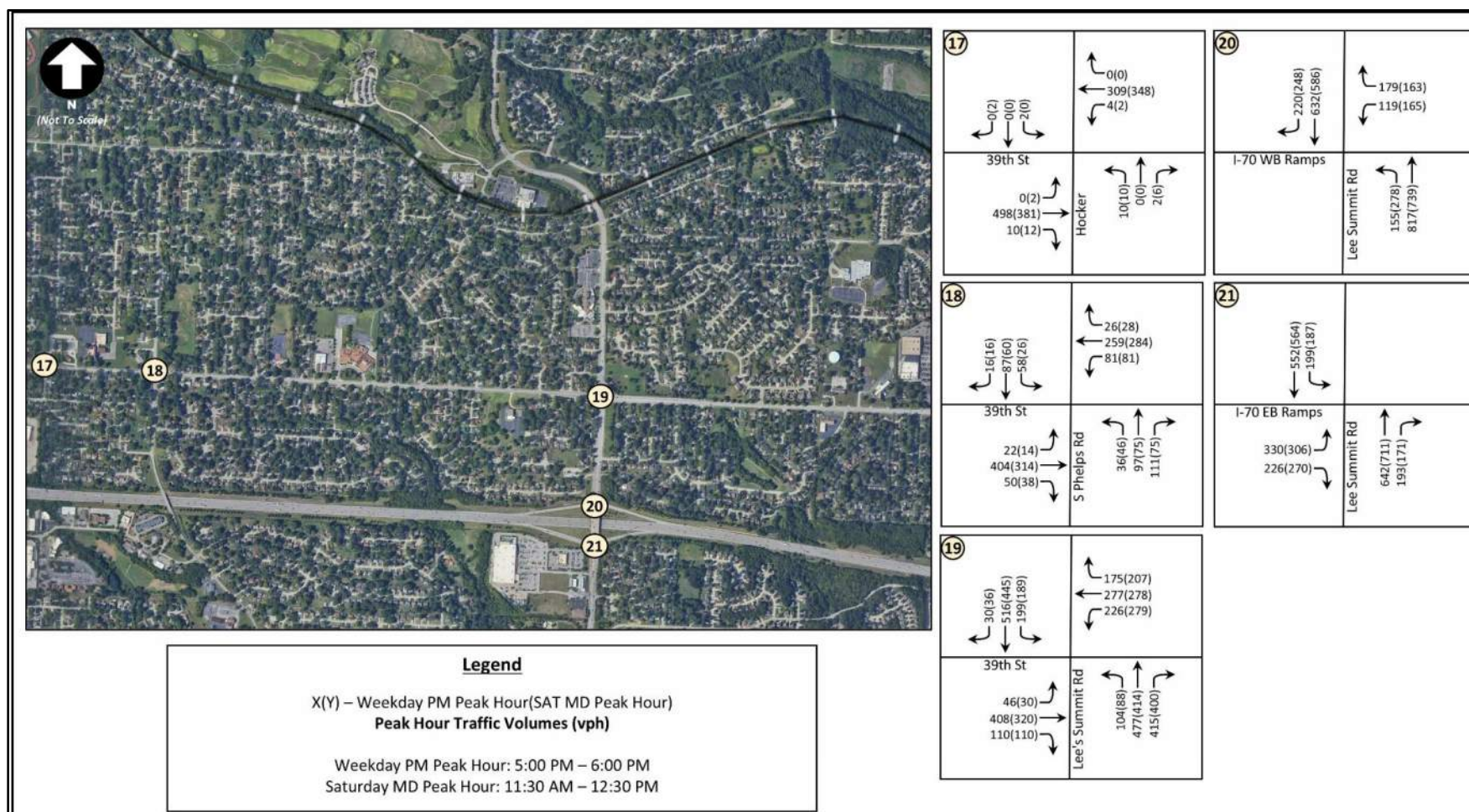
2026 Forecasted Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet B-1)



2026 Forecasted Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet B-2)

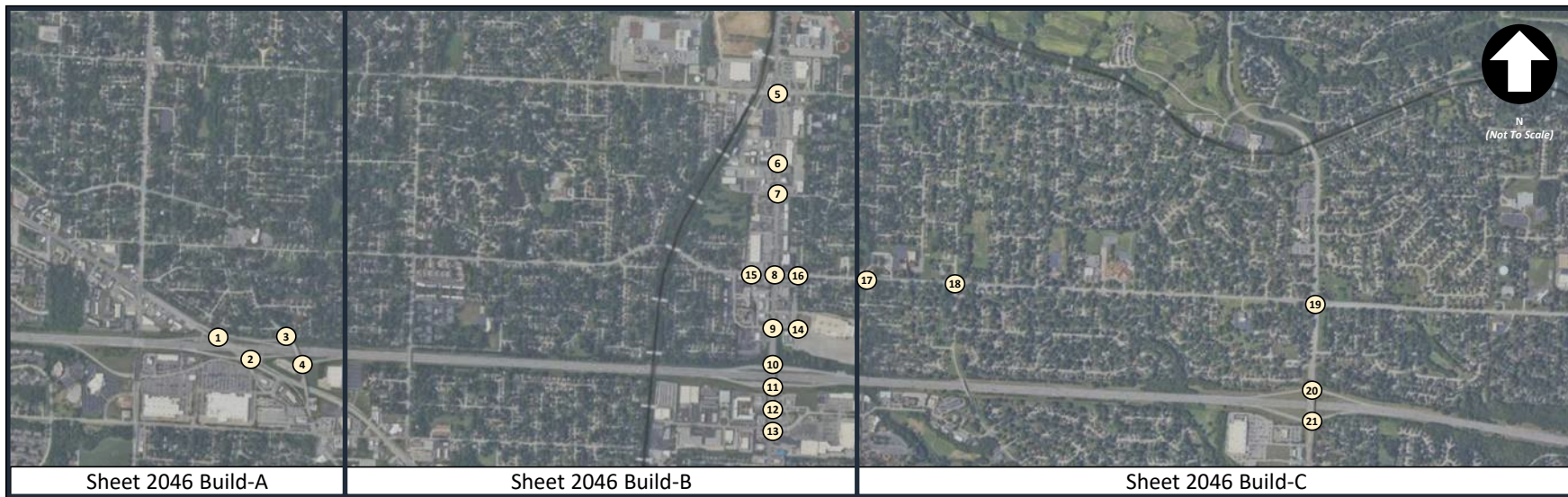


2026 Forecasted Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet C-1)

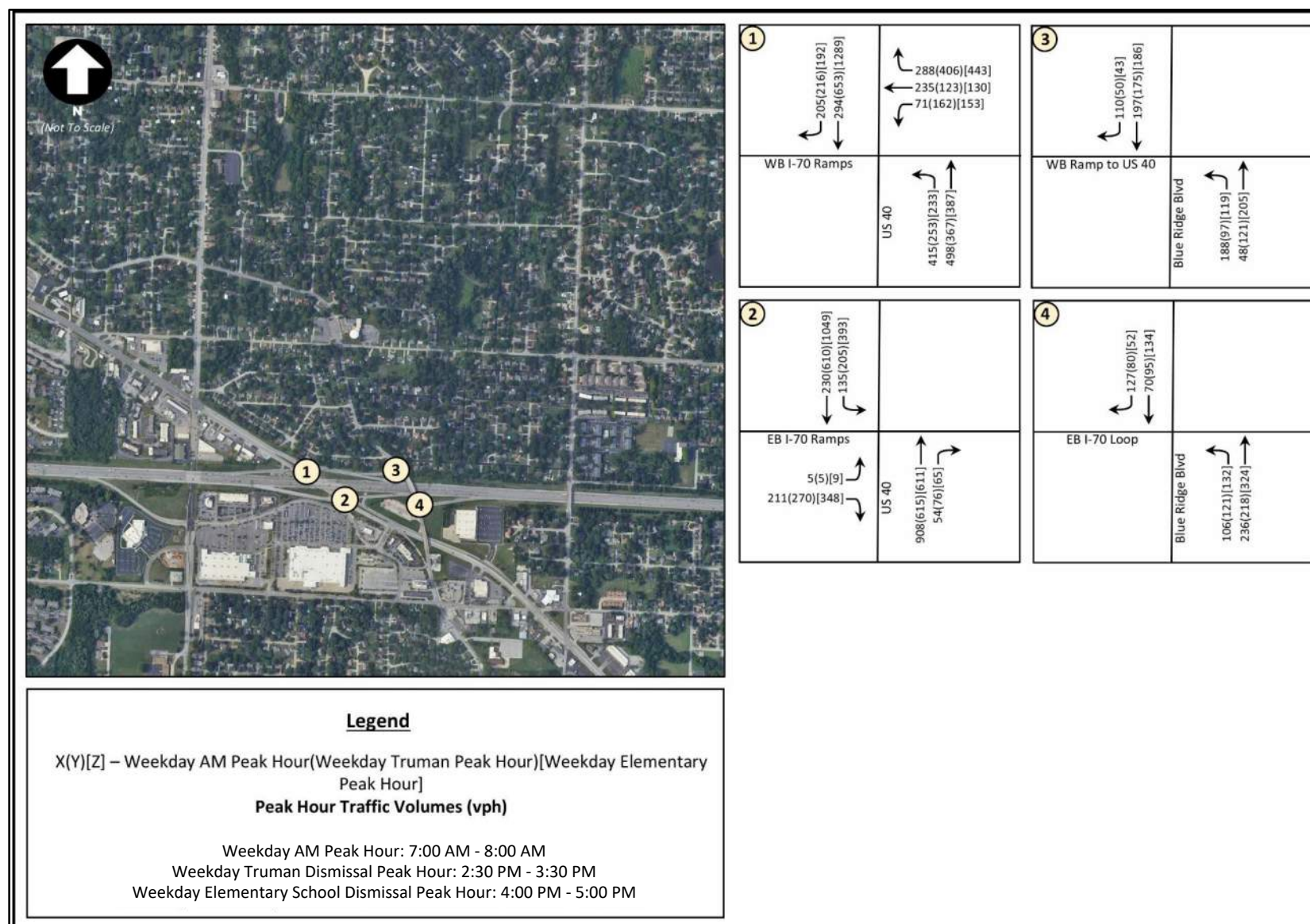


2026 Forecasted Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet C-2)

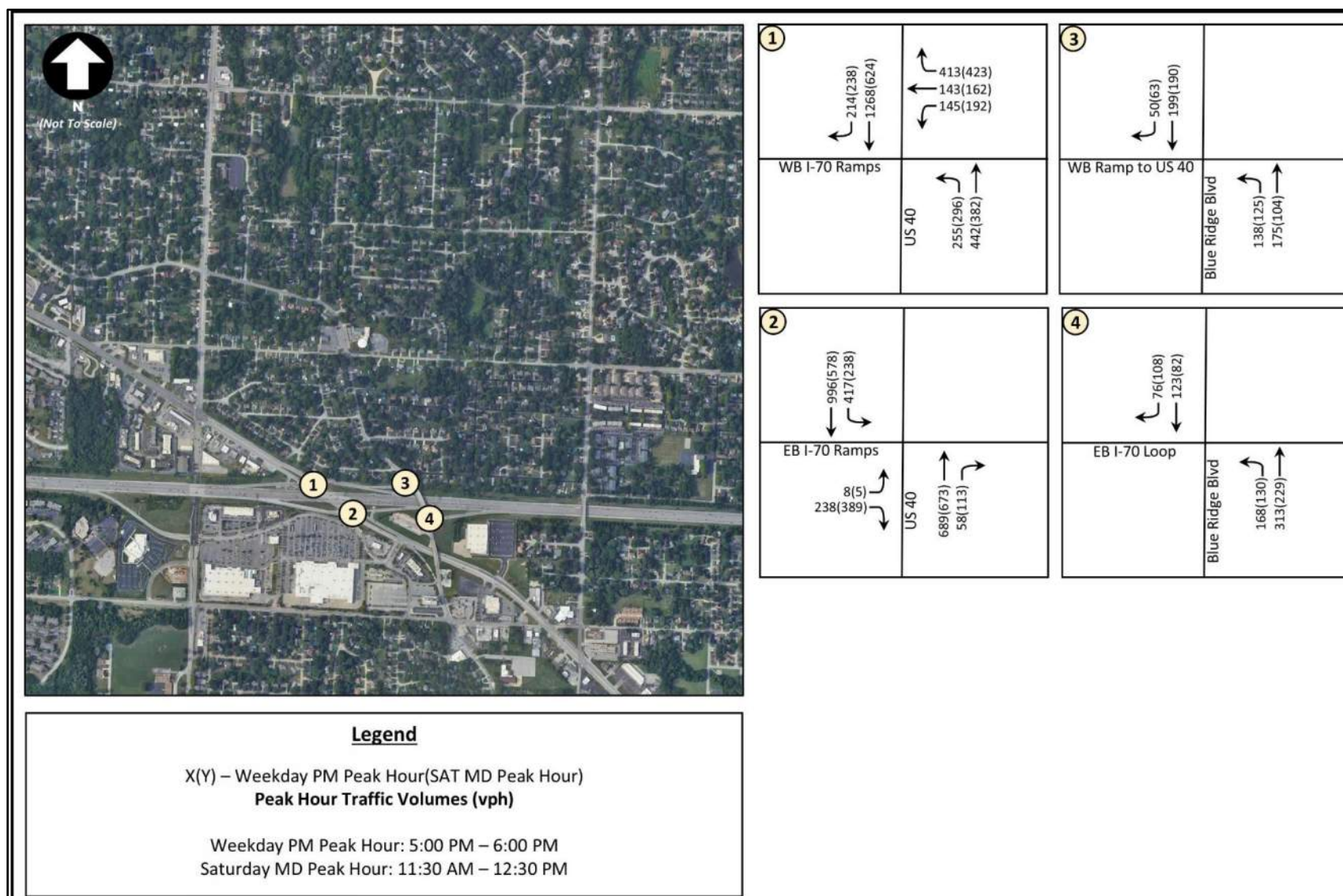
APPENDIX E – 2046 FORECASTED TRAFFIC VOLUMES



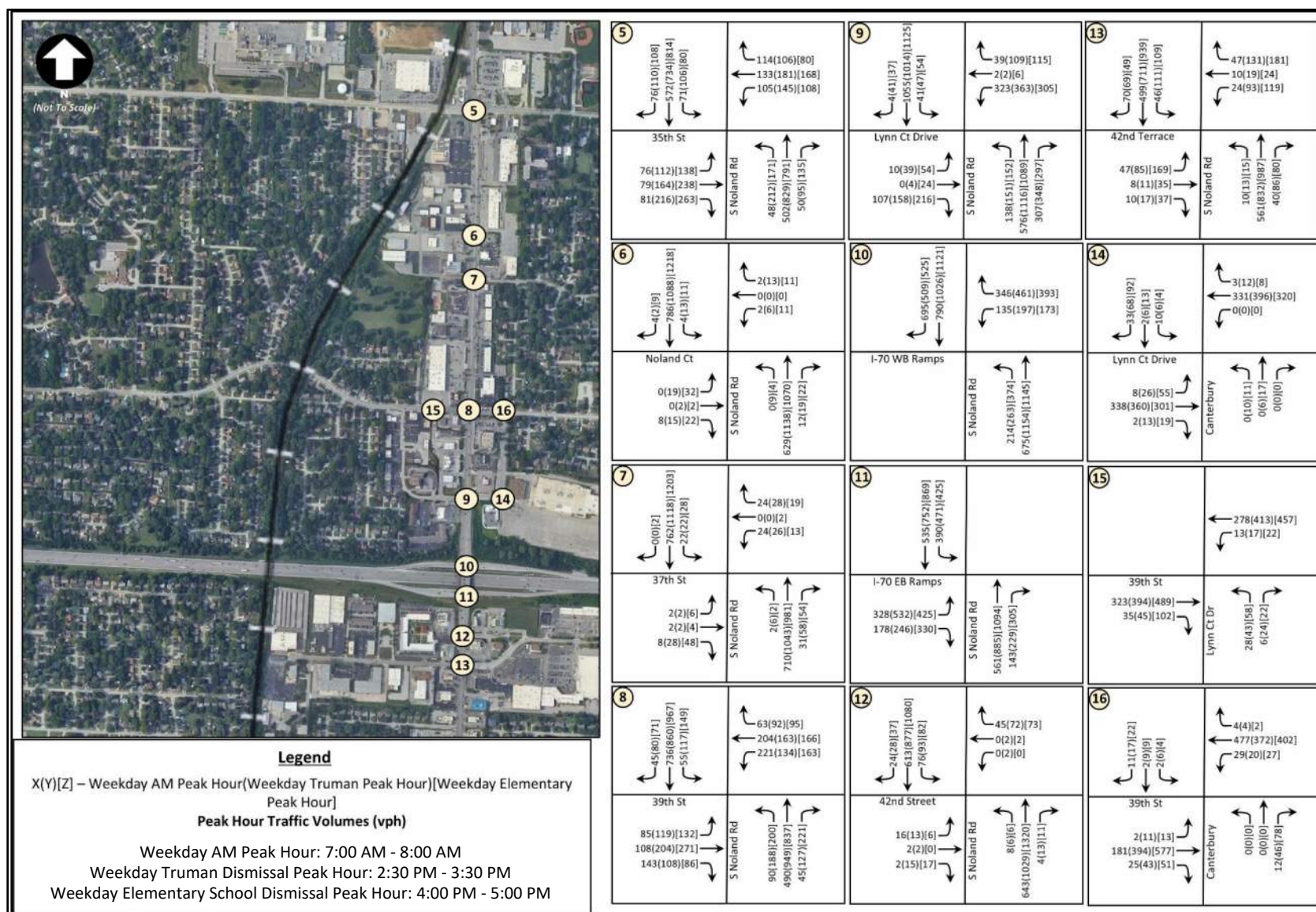
2046 Forecasted Traffic Volumes – Overall Study Plan



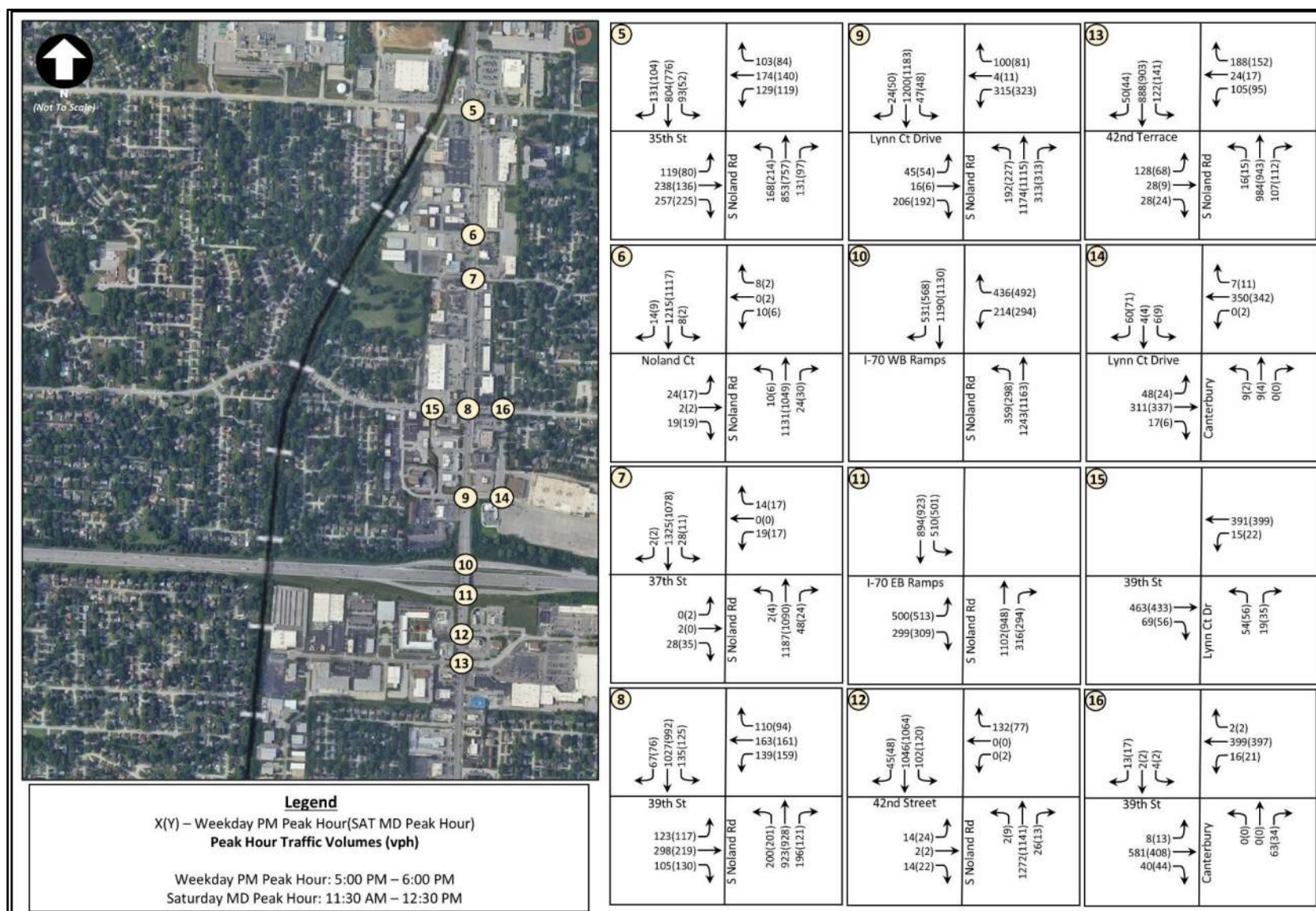
2046 Forecasted Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet A-1)



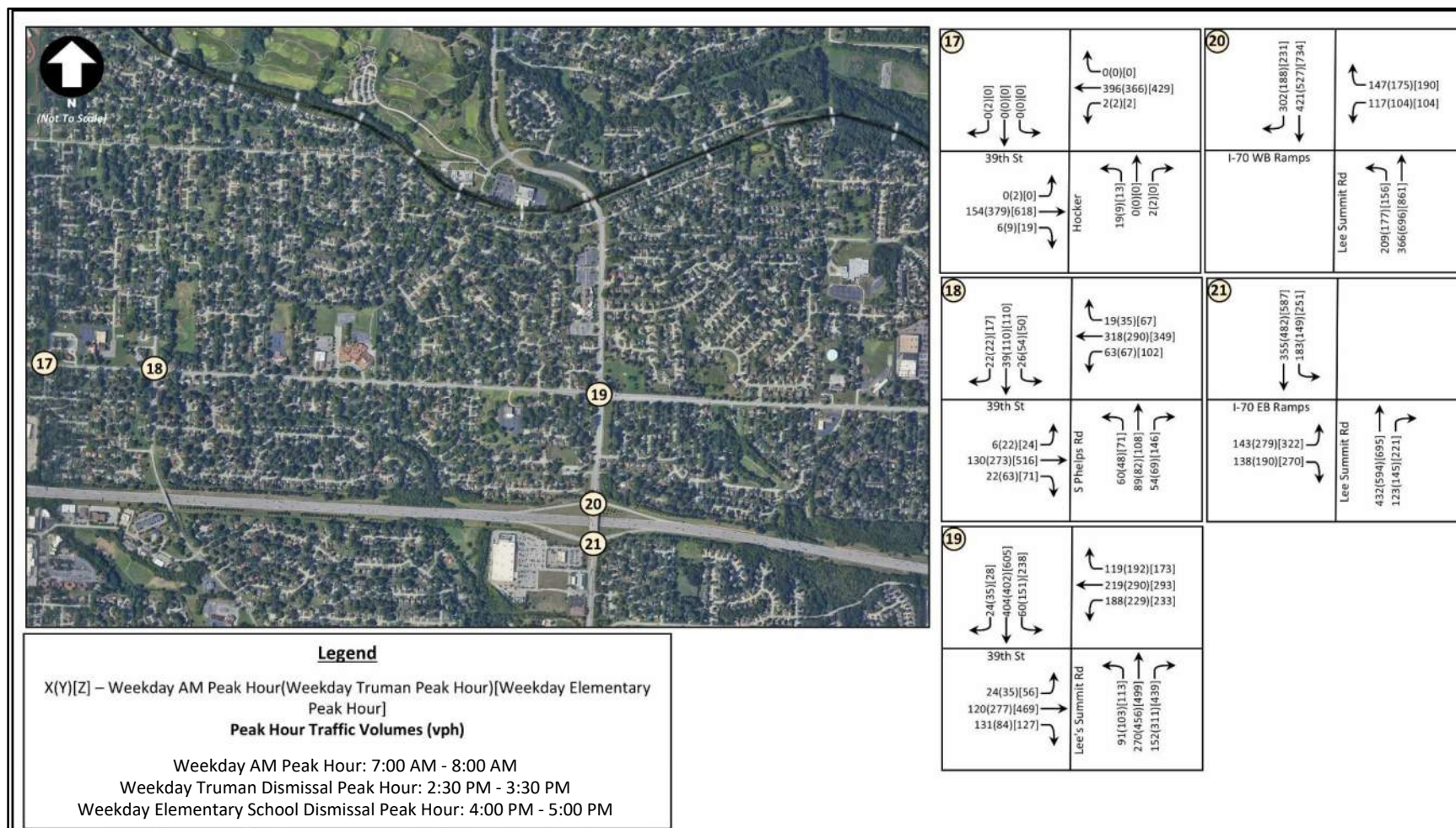
2046 Forecasted Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet A-2)



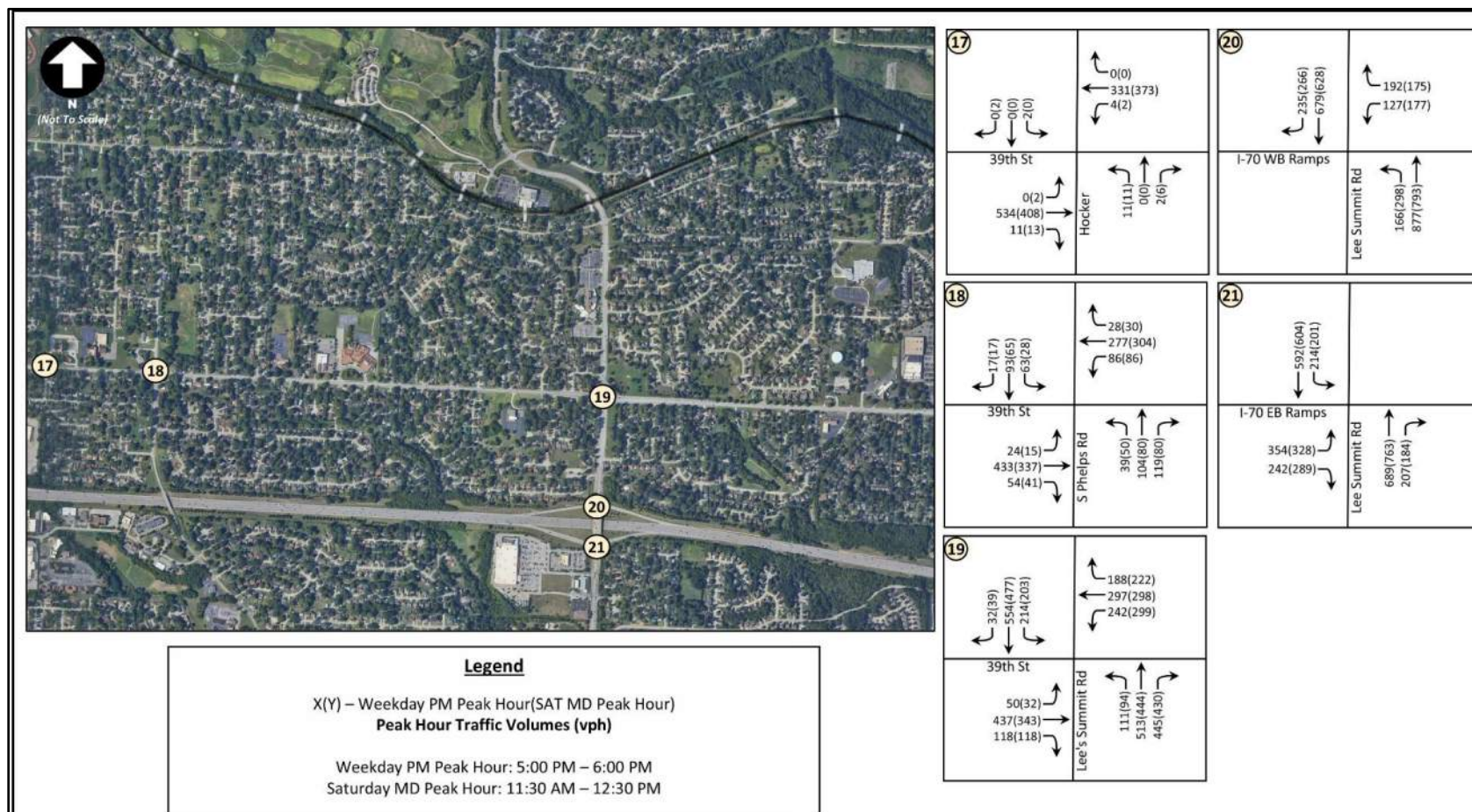
2046 Forecasted Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet B-1)



2046 Forecasted Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet B-2)

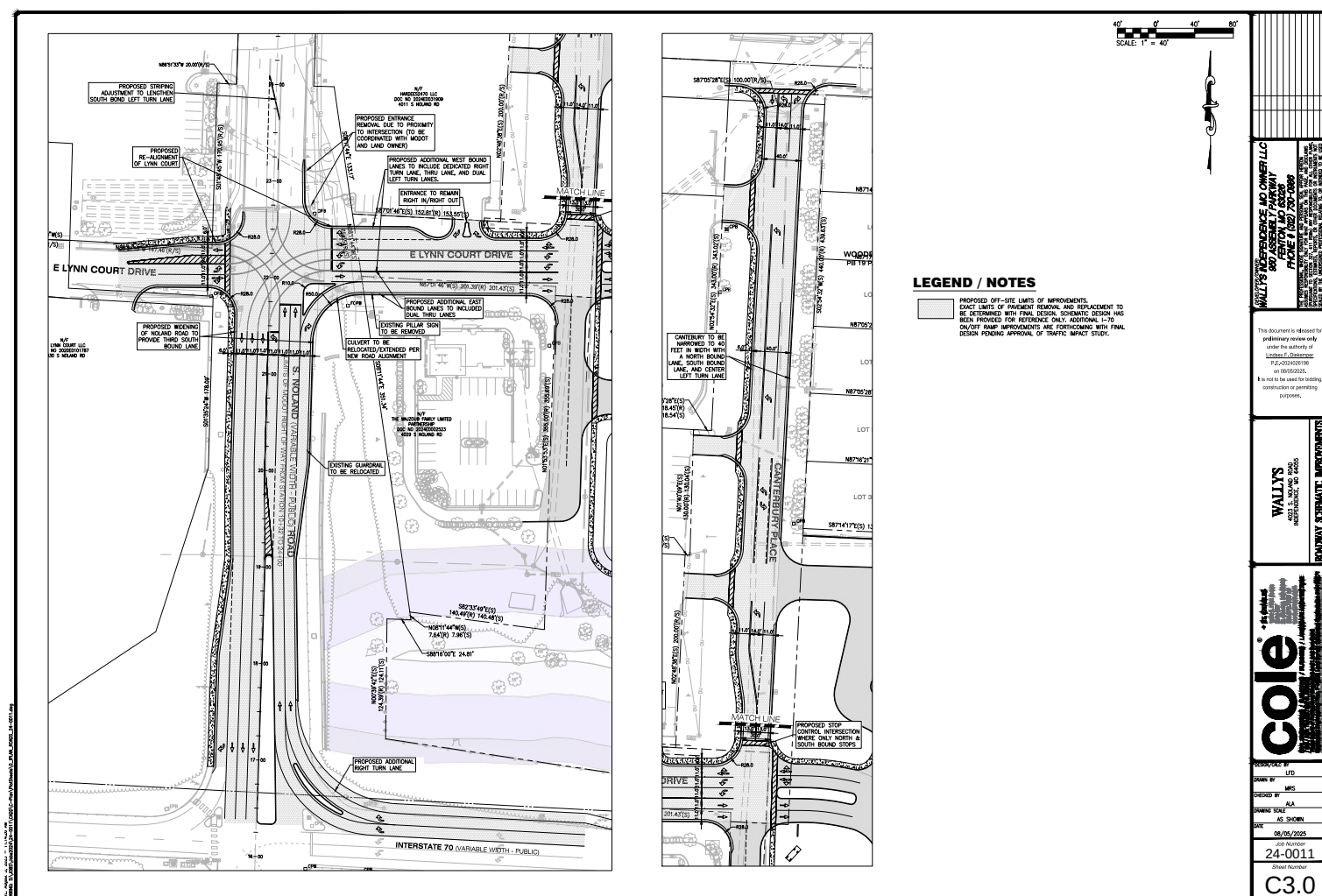


2046 Forecasted Traffic Volumes – AM, Truman, and Elementary Peak Hours (Sheet C-1)



2046 Forecasted Traffic Volumes – PM and Midday Saturday Peak Hours (Sheet C-2)





WALLY'S INDEPENDENCE TRAFFIC IMPACT STUDY

EXECUTIVE SUMMARY

Lochmueller Group has completed the following traffic study pertaining to the proposed Wally's to be located in the City of Independence, Missouri. The site is proposed off of Noland Road, at the intersection of Canterbury Place and Lynn Court Drive, just northeast of the Interstate 70 (I-70) and Noland Road interchange. The site will include a Wally's Travel Center (54.0 KSF) with 84 fueling positions. The existing Northern Tool & Equipment Store would be removed and replaced by the proposed Wally's. Access to the site would be provided primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street.

The intent of this study is to identify the traffic generation associated with the proposed redevelopment, analyze the associated traffic impacts, and determine the need for mitigation measures, if necessary. As discussed in the scoping meeting on November 26, 2024, with the Missouri Department of Transportation (MoDOT) and the City of Independence, the following scenarios will be evaluated:

- Year 2024 Existing
- Year 2026 Baseline (Existing + 2 years background growth)
- Year 2026 Forecasted (with development in place)
- Year 2046 Baseline (predevelopment)
- Year 2046 Forecasted (with development in place)

The following five peak hours were agreed upon to be part of the analysis:

- Weekday morning (7:00 AM to 8:00 AM),
- Truman High School Dismissal (2:30 PM to 3:30 PM),
- Elementary School Dismissal (4:00 PM to 5:00 PM),
- Weekday evening (5:00 PM to 6:00 PM), and
- Saturday midday (11:30 AM to 12:30 PM)

However, as agreed upon with the City of Independence and MoDOT, only the weekday AM and PM peak hours and the Saturday midday peak hour were modeled with respect to I-70 as it was determined that those time periods were the most critical for the interstate. The reasoning was that if I-70 and its interchange with Noland Road could support the proposed Wally's traffic during these critical time periods then the remaining two peak hours, the Truman High School and Elementary peak dismissal hours, could also be supported since those time periods were typically less congested along I-70 as compared to the commuter and/or weekend peak hours.

EXISTING AND NO-BUILD CONDITIONS

2024 EXISTING CONDITIONS

- The study intersections generally operate favorably in the 2024 Existing conditions. Some side-street approaches at unsignalized intersections along Noland Road experience long delays as they wait for gaps in traffic to complete their turning movement, but that is not uncommon

during peak periods in suburban areas. Additionally, the southbound and northbound queues at the I-70 and Noland Road interchange extend past the adjacent ramp terminals, which is not uncommon with a tight diamond configuration. The southbound queue length on Noland Road from the I-70 ramp terminals does not extend past Lynn Court Drive, and the northbound queue does not extend past 42nd Terrace, indicating that the interchange does operate acceptably.

- Overall, the existing conditions indicate that there is adequate capacity at the study intersections.
- Under existing conditions, the study area has experienced 1,082 crashes between 2019 and 2023. The most common crash classification was Rear End accounting for 42% of all crashes. Other common types include Passing and Out of Control which were largely focused near the I-70 acceleration and deceleration lanes for ramp entrances and exits.
- The following recommendations were offered for consideration as a means of improving existing conditions along the Noland Road corridor:
 - Extending the existing acceleration lanes along I-70 at the Noland Road interchange,
 - Correcting the existing offset at the signalized intersection of Noland Road and Lynn Court Drive, and
 - Closing the existing southern Hardee's access drive along Noland Road due to its proximity to the signalized intersection with Lynn Court Drive.

2026 NO-BUILD CONDITIONS

- The year 2026 was used as the project's construction year for purposes of evaluating traffic operations conditions associated with the proposed development. No modifications were made to the existing lane configurations.
- An annual background growth rate of 0.35% for the overall study area and I-70 Corridor was used to forecast future traffic volumes (as agreed to by MoDOT and the City of Independence).
- Upon evaluation, in 2026 the overall study area would experience slightly worsened delays and queue lengths as compared to the 2024 Existing operations, but the network would still be expected to operate acceptably overall.
- Safety analysis models show the predicted number of crashes should be 135.5 annual crashes under 2026 No-Build conditions in the study area. The predicted analysis yielded a lower annual crash rate than the existing rate, thereby indicating the existing roadway network within the study area experiences more crashes as compared to other roadways of similar volume and characteristics.

2046 NO-BUILD CONDITIONS

- The year 2046 was used as the project's horizon design year for purposes of evaluating traffic operations conditions into the future at a planning-level. No modifications were made to the existing lane configurations.

- Upon evaluation, in 2046 the overall study area would experience worsened delays and queue lengths when compared to the 2024 Existing conditions and 2026 No-Build conditions. However, it is anticipated that operations overall within the network would still operate acceptably.
- Safety analysis models show the predicted number of crashes should be 150.5 annual crashes under 2046 No-Build conditions in the study area. This represents an increase of 15 crashes per year as compared to 2026 No-Build conditions, which is attributable to the increased number of vehicles in the roadway network.

PROPOSED DEVELOPMENT

- It is anticipated that the proposed Wally's would provide 84 fueling stations. The proposed Wally's is expected to generate the following trips during each of the critical time periods included in this study:
 - 660 total trips during the weekday AM peak hour
 - 709 total trips during the Truman High School Dismissal peak hour
 - 582 total trips during the Elementary School Dismissal peak hour
 - 632 total trips during the weekday PM peak hour, and
 - 625 total trips during the Saturday Midday peak hour
- Access to the site would be provided primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street.

RECOMMENDED IMPROVEMENTS

In conjunction with the proposed Wally's Travel Center, several roadway improvements are recommended. While some improvements would be necessary as a result of the traffic generated by the proposed Wally's, several improvements such as extending the existing acceleration lanes along I-70 at the Noland Road interchange and/or aligning the existing offset intersection of Noland Road with Lynn Court Drive would be recommended regardless of the proposed development as a means of improving conditions (from both a traffic operations and safety perspective) along S Noland Road and/or I-70. Ultimately, it is recommended that the following roadway improvements be made prior to the opening of the Wally's Travel Center:

- I-70 EB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Extend the eastbound acceleration lane by a minimum of 145 ft.
- I-70 WB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Maximize the acceleration lane for the existing westbound on ramp to provide approximately 900 ft, inclusive of taper. Note that the proposed taper would end right before the guardrail for the existing railroad overpass. It should be noted that this

length would still not meet AASHTO guidelines given the proximity of the railroad overpass. However, this extension would still represent an improvement as compared to existing conditions.

- Noland Road & I-70 EB Ramp Terminal:
 - Extend the existing four-lane section of the eastbound approach to a total of 400 ft measured from the stop-bar.
- Noland Road & I-70 WB Ramp Terminal:
 - Provide an additional westbound right-turn lane to ultimately provide two left turns lanes and two right turn lanes. The dual right-turn lanes should be signalized, allowing right-turns on red after stop. The right-turn lanes should feed into the two existing northbound through lanes.
- Noland Road & Lynn Court Drive:
 - Reconstruct the intersection to correct the existing offset and to allow for the eastbound and westbound approaches to run concurrently. The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide a dedicated left-turn lane and a shared thru/right turn lane.
 - Westbound Approach:
 - Provide dual left-turn lanes, one through lane, and one right-turn lane.
 - Northbound Approach:
 - Provide one left-turn lane, two thru lanes, and one channelized right-turn lane.
 - Southbound Approach:
 - Provide one left-turn lane, one thru lane, and one shared through/right-turn lane.
 - Extend the striping for the southbound left-turn lane to increase the storage length, but do not modify the existing median.
 - Provide new traffic signal structures, appurtenances, and pedestrian signalization (with the exception of the SE quadrant).
 - Provide three southbound lanes immediately south of Lynn Court Drive and extending to the I-70 EB ramp terminal.
 - Close the southernmost Hardee's access drive just north of this intersection to reduce conflicts within the signalized intersection.
- Lynn Court Drive & Canterbury Place:
 - Provide a stop-controlled intersection where northbound and southbound traffic is required to stop and eastbound and westbound traffic travels freely.
 - The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.

- Westbound Approach:
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - Northbound Approach:
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
 - Southbound Approach:
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
- 39th Street & Canterbury Place
 - Restrict the unsignalized intersection to ¾ access (northbound left turn not permitted) via the construction of a channelized island on the northbound approach.
 - However, should the City of Independence desire, full access at this intersection could remain.
- Noland Road & 42nd Street:
 - Consideration should be given towards restricting left-turns for the eastbound and westbound approaches to improve the efficiency of this unsignalized intersection. The existing left-turning vehicles can divert to the signalized intersection of 42nd Terrace.
- Signal Timing Improvements:
 - Signal timing improvements along the Noland Road corridor are recommended prior to the Wally's Travel Center being in place. It is anticipated that all cycle lengths, with the exception of the Saturday midday, would remain the same. It is recommended that the Saturday midday cycle length be adjusted from 100 seconds to 110 seconds. A full signal timing progression analysis and implementation along the Noland Road corridor is recommended. It should be noted that coordination between Operation Green Light (OGL) will be necessary prior to the implementation of the new signal timings.

2026 AND 2046 FORECASTED CONDITIONS

The results and conclusions for the following scenarios assume the full build of the proposed Wally's Travel Center is in place and all recommended improvements presented above.

2026 FORECASTED CONDITIONS

- The year 2026 was used as the construction year for evaluating near-future traffic conditions.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. Side-street approaches would continue to operate with long delays similar to the 2026 No-Build conditions.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place. The additional westbound right-turn lane at the westbound ramps adds capacity to the interchange, improving the operations. The southbound queue

length at the eastbound ramps would be expected to extend past the westbound ramp terminal. However, the average queue length would not be expected to extend past Lynn Court Drive.

- The realigned intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during all peak hours. The average westbound queue length would be well contained within the existing laneage. However, during peak periods, the max westbound queue would extend past Canterbury Place periodically.
- The internal intersection of Lynn Court Drive and Canterbury Place would be expected to operate well with minimal queues.
- Under the 2026 No-Build conditions, the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS E, but with the recommended northbound left-turn restriction in place, the approach would improve to a LOS B in the 2026 Forecasted conditions.
- Overall, it was concluded that with the recommended improvements in place, the roadway network in the year 2026 will operate acceptably and have adequate capacity with the proposed Wally's in place.
- Safety analysis models show the 2026 Forecasted conditions should result in 138.3 crashes per year in the study area. This is a *minimal* net increase of 2.8 crashes per year as compared to the 2026 No-Build conditions. The minimal increase in crashes is simply due to the increased number of vehicles entering Noland Road to access Wally's that otherwise would not be present under No-Build conditions. Freeway crashes are slightly *reduced* under 2026 Forecasted conditions due to the increased acceleration and deceleration lengths and the lower volumes under the Noland Road interchange (traffic diverted to the proposed Wally's).

2046 FORECASTED CONDITIONS

- The 2046 Forecasted conditions are similar to the 2026 Forecasted conditions with generally acceptable operating conditions throughout the study area.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to continue to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place with an overall LOS C or better for both ramp terminals.
 - The maximum queue lengths for the northbound and southbound approaches would be expected to extend past the adjacent ramp terminals to Lynn Court Drive and 42nd Street. However, the average queue length would not extend past these intersections.
- The intersection of Noland Road and Lynn Court Drive would be expected to continue to operate at an overall LOS B during all peak periods. The average queues would not be expected to extend past nearby intersections and the v/c ratios indicate that there is surplus capacity at this intersection despite the addition of Wally's. However, it should be noted that during peak periods, the max westbound queue would extend past Canterbury Place periodically.

- The internal intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well with a LOS C or better for each approach.
- Under the 2046 No-Build conditions, the northbound approach at Canterbury Place & E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS F, but with the recommended northbound left-turn restriction in place, the approach would operate at a LOS B through the year 2046.
- Compared to the 2046 No-Build scenario, the overall roadway network would operate acceptably, and with signal timing modifications and lane configuration changes, some of the roadway network would experience shorter delays and queues.
- Safety models predict an annual crash rate of 151.8 crashes per year under 2046 Forecasted conditions. This is a *minimal* net increase of 1.8 crashes per year over the 2046 No-Build. Similar to the 2026 Forecasted conditions comparison, the increase in total crashes is due to the increased number of vehicles attracted to Noland Road due to Wally's that otherwise would not be present on the roadway. The net increase in crashes is minimal at less than 1% per year as compared to No-Build conditions.

Overall, it was concluded that with the recommended improvements in place, the roadway network can accommodate the increased traffic volumes attributable to the proposed Wally's through the year 2046. The following report presents, in detail, the methodology and resulting analysis that support these conclusions.

EXISTING TRAFFIC VOLUMES

Traffic counts were collected over a twelve-hour period (6:00 AM to 6:00 PM) on a typical weekday. Four-hour counts (10:00 AM to 2:00 PM) were collected on a typical Saturday. The traffic counts were performed on May 2, May 4, and May 11, 2024 while school was in session. Given the close proximity of numerous schools to the redevelopment site, traffic operational analysis was completed for weekday morning (7:00 AM to 8:00 AM), Truman High School Dismissal (2:30 PM to 3:30 PM), Elementary School Dismissal (4:00 PM to 5:00 PM), weekday evening (5:00 PM to 6:00 PM), and Saturday midday (11:30 AM to 12:30 PM) peak periods. Based on input from the review agencies, the following intersections are included in the study:

1. S Noland Rd & 42nd Terrace (signal)
2. S Noland Rd & 42nd Street (unsignalized)
3. S Noland Rd & I-70 EB ramps (signal)
4. S Noland Rd & I-70 WB ramps (signal)
5. S Noland Rd & Lynn Ct Drive (signal)
6. S Noland Rd & 39th Street (signal)
7. S Noland Rd & 37th Street (unsignalized)
8. S Noland Rd & Noland Ct (signal)
9. S Noland Rd & 35th Street (signal)
10. 39th Street & Lynn Ct Drive (unsignalized)
11. 39th Street & Canterbury (unsignalized)
12. 39th Street & Hocker (unsignalized)
13. 39th Street & S Phelps Road (signal)
14. 39th Street & Lee's Summit Road (signal)
15. Canterbury Place & Lynn Ct Drive (unsignalized)
16. Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at WB ramp to US 40 (unsignalized)
17. Blue Ridge Blvd/US 40 Interchange & Blue Ridge Blvd at EB 70 loop (new construction)
18. Blue Ridge Blvd/US 40 Interchange & US 40 / WB 70 Ramps (signal)
19. Blue Ridge Blvd/US 40 Interchange & US 40 / EB 70 Ramps (signal)
20. Lee's Summit Interchange & I-70 EB ramps (signal)
21. Lee's Summit Interchange & I-70 WB ramps (signal)

Based upon input from MoDOT and a review of data collected in May 2023 for MoDOT's project J4I3195, it was determined that it would be appropriate to adjust the May 2024 data upwards by 10% along Noland Road between 42nd Terrace Street and 35th Street. This adjustment was applied to all traffic utilizing Noland Road (through movements as well as turning movements onto and off of the corridor). Once adjusted, the existing traffic volumes used as the basis of the analysis for this study closely align with the base volumes used in MoDOT's project. In addition, the mainline I-70 volumes were adjusted upward to align with the mainline traffic volumes utilized by MoDOT in project J4I3195.

The 2024 adjusted existing traffic volumes are shown in **Appendix A**.

ANALYSIS METHODOLOGY

TRAFFIC OPERATIONS

Intersection performance or traffic operations are quantified by six Levels of Service (LOS), which range from LOS A ("Free Flow") to LOS F ("Fully Saturated"). LOS C is normally used for design purposes and represents a roadway with volumes ranging from 70% to 80% of its capacity. LOS E is considered acceptable for peak period conditions in urban and suburban areas and would be an appropriate benchmark of acceptable traffic for the study area road system.

Levels of service for intersections are determined based on the average delay experienced by motorists. Signalized intersections reflect higher delay tolerances as compared to unsignalized and roundabout locations because motorists are accustomed to and accept longer delays at signals. For signalized, all-way stop, and roundabout intersections, the average control delay per vehicle is estimated for each movement and then aggregated for each approach and the intersection as a whole. For intersections with partial (side-street) stop control, the delay is calculated for the minor movements only (side-street approaches and major road left-turns) since thru traffic on the major road is not required to stop.

Table 1 summarizes the criterion for both signalized and unsignalized intersections, as defined by the Highway Capacity Manual (HCM) 6th Edition, last updated in 2016 by the Transportation Research Board.

Table 1. Intersection Level of Service Thresholds

Level of Service	Control Delay per Vehicle (sec/veh)	
	Signalized	Unsignalized/Roundabout
A	≤ 10	0-10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

The baseline 2024 traffic operating conditions at the critical study intersections were evaluated based upon the traffic volumes presented in Appendix A. The analysis was completed using Synchro 11 traffic modeling software, which is based upon the methodologies outlined in the "Highway Capacity Manual" (HCM) published by the Transportation Research Board.

In addition to Synchro, VISSIM software was also used, which is a microsimulation tool that accurately replicates individual vehicles and their interactions within complex traffic streams, such as interchanges, freeways, and expressway corridors with signalized intersections. As such, I-70 (including the ramp terminals) from US 40/Blue Ridge Boulevard to Lee's Summit Road were included within the VISSIM model. The intersections along Noland Road from 42nd Terrace to 39th Street were also included in the VISSIM model.

It should be noted that VISSIM provides a higher accuracy for the measures of effectiveness than Synchro given that is a highly customizable microsimulation tool. As such, per MoDOT's request, the Synchro results are only shown for the study intersections not included within the VISSIM model as the VISSIM results have a higher confidence level.

Additionally, as agreed upon with the City of Independence and MoDOT, only the weekday AM and PM peak hours and the Saturday midday peak hour were modeled in VISSIM as it was determined that those time periods were the most critical for the study area. The reasoning was that if I-70 and its interchange with Noland Road could support the proposed Wally's traffic during these critical time periods then the remaining two peak hours, the Truman High School and Elementary peak dismissal hours, could also be supported since those time periods were typically less congested than the commuter peak hours.

The VISSIM traffic simulation model calibration process began with acquiring of the "Improve I-70" VISSIM model developed for MoDOT's overlapping study area covering I-70 from Manchester Bridge to I-470 (MoDOT's project J4I3195). This model was then adjusted to focus on the Noland Road interchange, the interchange the majority of the proposed Wally's traffic would utilize. Data collection was conducted to provide traffic volumes for the modified network and verify current signal timings.

With the network backbone established, the received model was reviewed and modified as necessary. Free-flow speed distributions provided accurately reflected speeds recorded by RITIS during free-flow conditions. Reduced speed areas were also reviewed or generated for turning movements and locations in the network where the roadway geometry physically limits speeds below the free-flow speed or posted speed limits. Next, traffic control measures were addressed. Locations where yielding or traffic control priority needed to be established (such as a right-turn-on-red) were coded with conflict areas or priority rules. Conflict areas are most commonly used unless further refinement of the gap times or yielding characteristics was necessary, in which case priority rules were deployed.

Traffic volumes were then represented in the VISSIM model as an origin-destination matrix estimated from turning movement counts for each of the peak hours considered. The matrix specifies the model's traffic patterns and the routes vehicles take to traverse the model network. Traffic entering the model network was coded using vehicle inputs. Vehicle inputs specify volumes and vehicle type compositions, which were grouped into passenger vehicles, and HGVs. The origin-destination matrix was routed statically with routes traversing the entire network for optimum accuracy rather than simply intersection by intersection.

Since VISSIM starts with zero vehicles in the network, a warm-up period is needed to initiate the model with traffic prior to capturing data. The warm-up period is known as the seeding period and its length and volume characteristics were adjusted as part of the calibration process. Given the scale of the network, a 60-minute seeding period was used to establish background traffic before recording results.

Given the inherent stochastic nature of simulation (imposed by random seeds), multiple simulation runs using different seed numbers were required for each scenario and the reported model results were averaged across runs. Ten simulation runs were completed, which is typically sufficient to obtain an appropriate level of confidence in the results.

PROPOSED DEVELOPMENT - WALLY'S INDEPENDENCE

As previously mentioned, the proposed Wally's Travel Center will be located in the City of Independence, Missouri. The development is planned to be located at the intersection of Canterbury Place and Lynn Court Drive, just northeast of the I-70 and Noland Road interchange. Positioned off Noland Road, the development will feature a 54k SF Wally's Travel Center with 84 fueling stations. The existing Northern Tool & Equipment Store on the site will be demolished to make way for the new facility. Primary access to the site will be from Noland Road, directly across from Lynn Court Drive, with secondary access available via Canterbury Place, which connects to E 39th Street.

TRIP GENERATION

In forecasting the proposed use's impacts upon traffic conditions, it was necessary to identify the site's trip generation potential, as any impacts to the surrounding road system would be tied to the net increase in trip generation.

Initially, the Trip Generation Manual, 11th Edition, published by the Institute of Transportation Engineers (ITE), was consulted as a reference to forecast the trip generation of the proposed Wally's. LUC 945: Convenience Store/Gas Station would be the most applicable land use for Wally's. However, the size of Wally's, in terms of square footage and vehicle fueling positions (VFP), is well beyond the data range provided for within the ITE data and the intended use of the proposed Wally's does not match the description for the land uses provided in the Trip Generation Manual. Therefore, as agreed upon with MoDOT and the City of Independence, Wally's-specific data from their existing Fenton, Missouri site was used to calculate the trip generation. The Fenton store was selected since it is located within a suburban community (Fenton) within a larger metropolitan area (St. Louis), similar to the proposed site in Independence relative to the Kansas City area.

Trip generation rates for the Wally's Fenton site were calculated based upon the number of vehicle fueling positions (72 VFP). To aid in this analysis, traffic counts during the study peak periods were collected at the existing Fenton site. The trip generation rates for the Fenton Wally's site were determined by comparing the existing hourly traffic volumes at the Fenton Wally's Site to the number of VFP. **Table 16** shows the trip generation rates with respect to the number of vehicle fueling positions. These rates were used to determine the trip generation potential for the proposed Wally's in Independence.

Table 16. Proposed Wally's Trip Generation Rates

Time Period	Trips per Vehicle Fueling Position		
	In	Out	Total
AM Peak Hour	4.00	3.86	7.86
Truman HS Dismissal Hour	4.03	4.42	8.44
Elementary Dismissal Hour	3.32	3.61	6.93
PM Peak Hour	3.58	3.94	7.53
Saturday Middy Peak Hour	3.69	3.75	7.44

It should be emphasized that not all the trips generated by the proposed development would be new to the transportation network. Rather, a portion of the trips could be attracted to the proposed Wally's as part of an existing trip to another destination. Given the intended nature of Wally's, most of the site's traffic is expected to be existing trips on I-70 that are *diverted* from their route to stop for gas and/or to purchase something from the convenience market on their way to their original destination. For example, a motorist going by on I-70 would exit the interstate to travel to and from the Wally's for services. The trips would not be new to the interstate but would be new trips traveling through the Noland Road interchange.

Studies conducted on the behalf of Buc-ee's (a similar concept land use) concluded that data from eight similar sites within Texas indicate that more than 90% of customers live outside a site's zip code. This data, combined with the proposed Wally's close proximity to I-70, suggests that nearly all site-generated trips for this use can be expected to act as diverted link trips to/from the nearby interstate. Therefore, it was estimated that approximately 90% of the new trips are likely to fall into the above-defined category of diverted trips whereas 10% of the new trips will come from the adjacent road network other than I-70.

The trip generation estimates for the proposed Wally's are shown in **Table 17**. As shown, the proposed Wally's is expected to generate a total of 660, 709, 582, 632, and 625 total trips during the weekday AM, Truman dismissal, Elementary dismissal, PM, and Saturday midday peak hours, respectively.

Table 17. Wally's Independence Trip Generation Estimates

	AM Peak Hour			Truman Peak Hour			Elementary Peak Hour			PM Peak Hour			Sat MD Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Total Site Generated Trips	336	324	660	338	371	709	279	303	582	301	331	632	310	315	625
Diverted Trips	297	297	594	319	319	638	262	262	524	285	285	570	282	282	564
New Trips	39	27	66	19	52	71	17	41	58	16	46	62	28	33	61

DIRECTIONAL DISTRIBUTION

The forecasted trips were assigned into and out of the site based upon the anticipated directional distribution, which was estimated from the existing traffic patterns and anticipated service area. The majority of the site's traffic is expected to be existing trips on I-70 that are diverted from their route to stop for gas and/or to purchase something from the convenience market on their way to their original destination.

This means that vehicles would exit the I-70 ramps onto Noland Road, arrive at the Wally's, then re-enter I-70 to continue along their original route. These trips would be proportional to the existing traffic flows on I-70. It was estimated that all trips from I-70 fall into the above-defined category. The remainder of diverted trips were estimated based on traffic counts on Noland Road at the I-70 interchange.

It was determined that the directional distribution for the new trips would also be proportional to existing traffic flows at major intersections to the north and south of the proposed site. The intersection of 42nd Terrace and Noland Road and the intersection of 39th Street and Noland Road were the intersections used to estimate the travel patterns of the Wally's "new" trips.

Given the convenience nature of the fuel center, which aims to predominantly cater to vehicles traveling along I-70, there is a need to differentiate the directional distribution of the Wally's trips based upon the peak hour considered since the traffic patterns differ significantly based upon the peak hour. The directional distribution estimates for the site-generated traffic are presented in **Table 18** through **Table 22** and illustrated in **Figure 7** through **Figure 11**.

Table 18. Directional Distribution Percentages Applied to Proposed Wally's - Weekday AM

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	32%
I-70 to and from the west	0%	55%
Noland Road to and from the north	42%	7%
Noland Road to and from the south	32%	6%
39 th Street to and from east	13%	0%
39 th Street to and from west	7%	0%
42 nd Terrace to and from east	3%	0%
42 nd Terrace to and from west	3%	0%

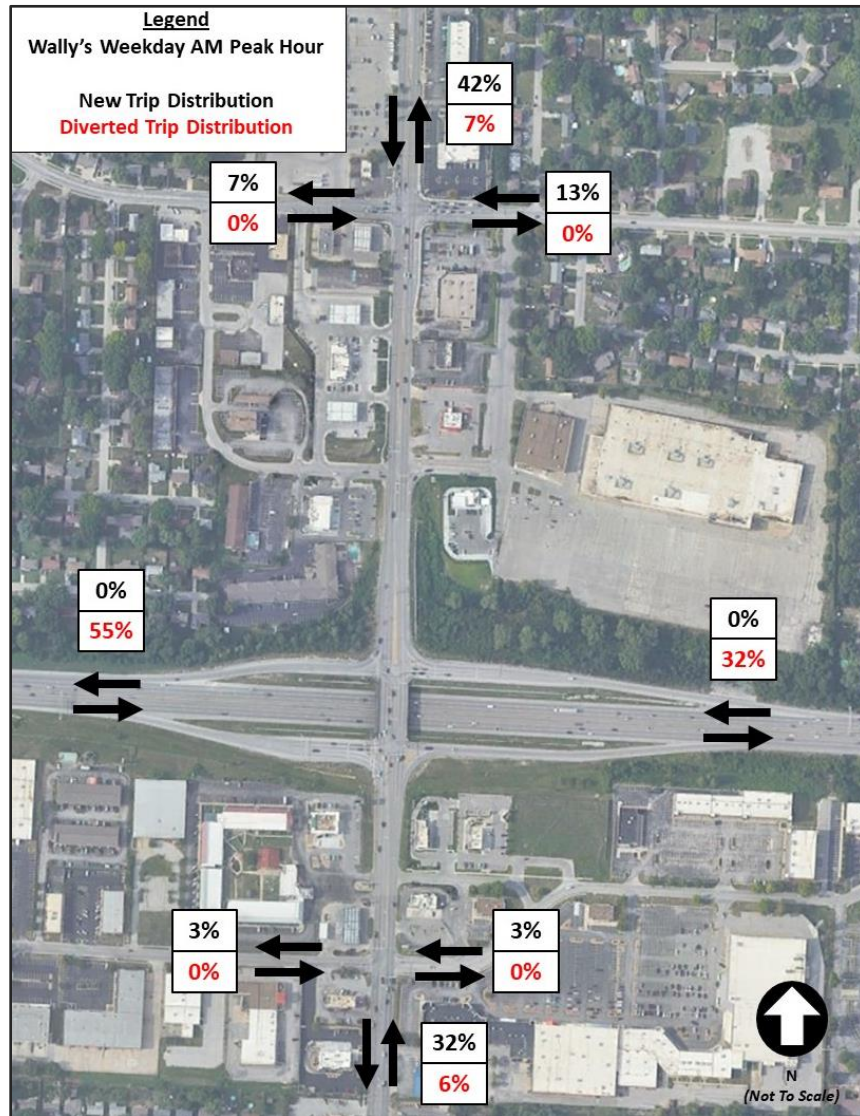


Figure 7. Directional Distribution Percentages Applied to Proposed Wally's - Weekday AM

Table 19. Directional Distribution Percentages Applied to Proposed Wally's – Truman Dismissal

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	37%
I-70 to and from the west	0%	45%
Noland Road to and from the north	40%	9%
Noland Road to and from the south	39%	9%
39 th Street to and from east	6%	0%
39 th Street to and from west	5%	0%
42 nd Terrace to and from east	6%	0%
42 nd Terrace to and from west	4%	0%

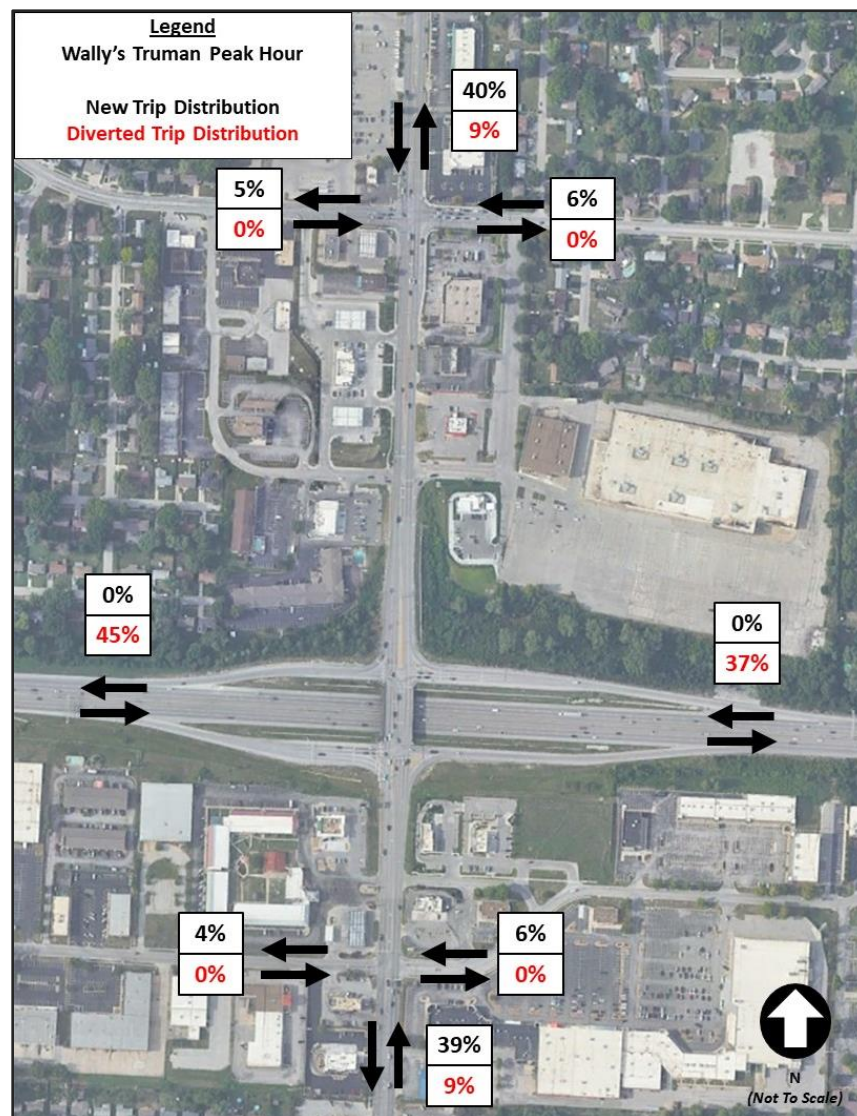
**Figure 8. Directional Distribution Percentages Applied to Proposed Wally's – Truman Dismissal**

Table 20. Directional Distribution Percentages Applied to Proposed Wally's – Elementary Dismissal

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	37%
I-70 to and from the west	0%	43%
Noland Road to and from the north	38%	10%
Noland Road to and from the south	39%	10%
39 th Street to and from east	6%	0%
39 th Street to and from west	3%	0%
42 nd Terrace to and from east	7%	0%
42 nd Terrace to and from west	7%	0%

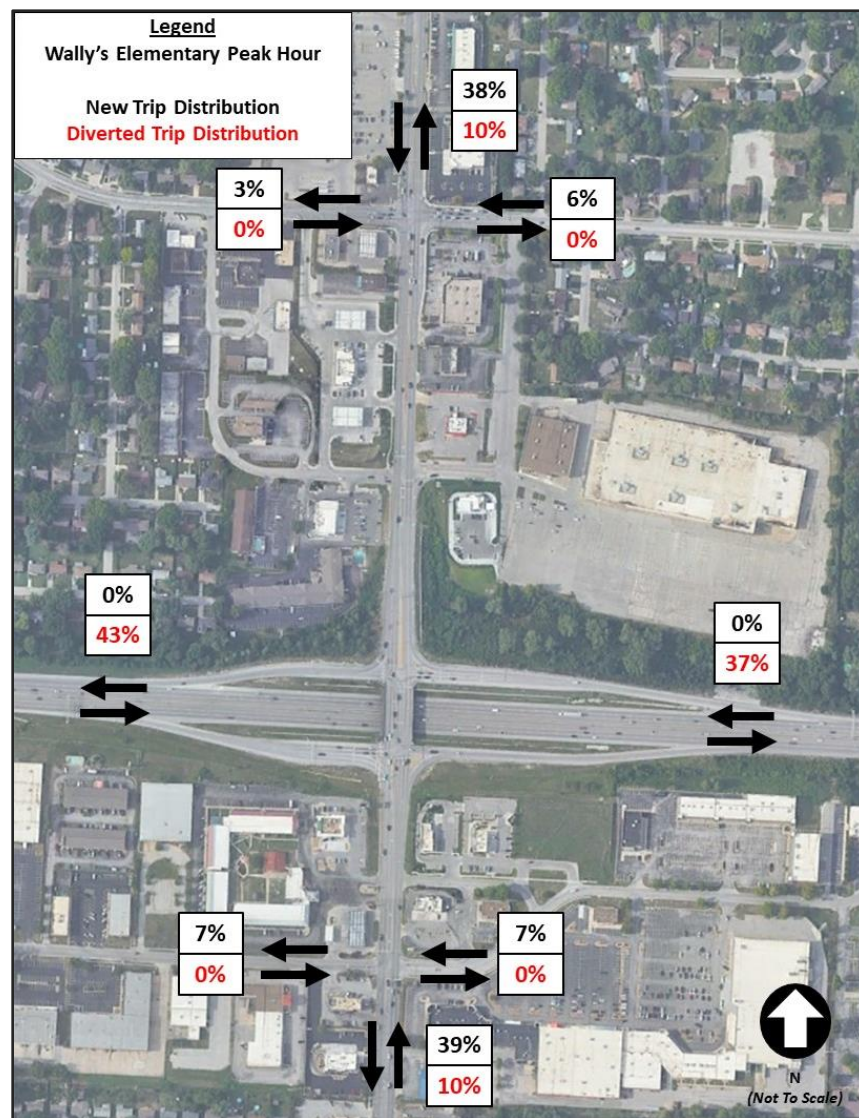


Figure 9. Directional Distribution Percentages Applied to Proposed Wally's – Elementary Dismissal

Table 21. Directional Distribution Percentages Applied to Proposed Wally's – Weekday PM

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	35%
I-70 to and from the west	0%	47%
Noland Road to and from the north	40%	9%
Noland Road to and from the south	38%	9%
39 th Street to and from east	6%	0%
39 th Street to and from west	4%	0%
42 nd Terrace to and from east	7%	0%
42 nd Terrace to and from west	5%	0%

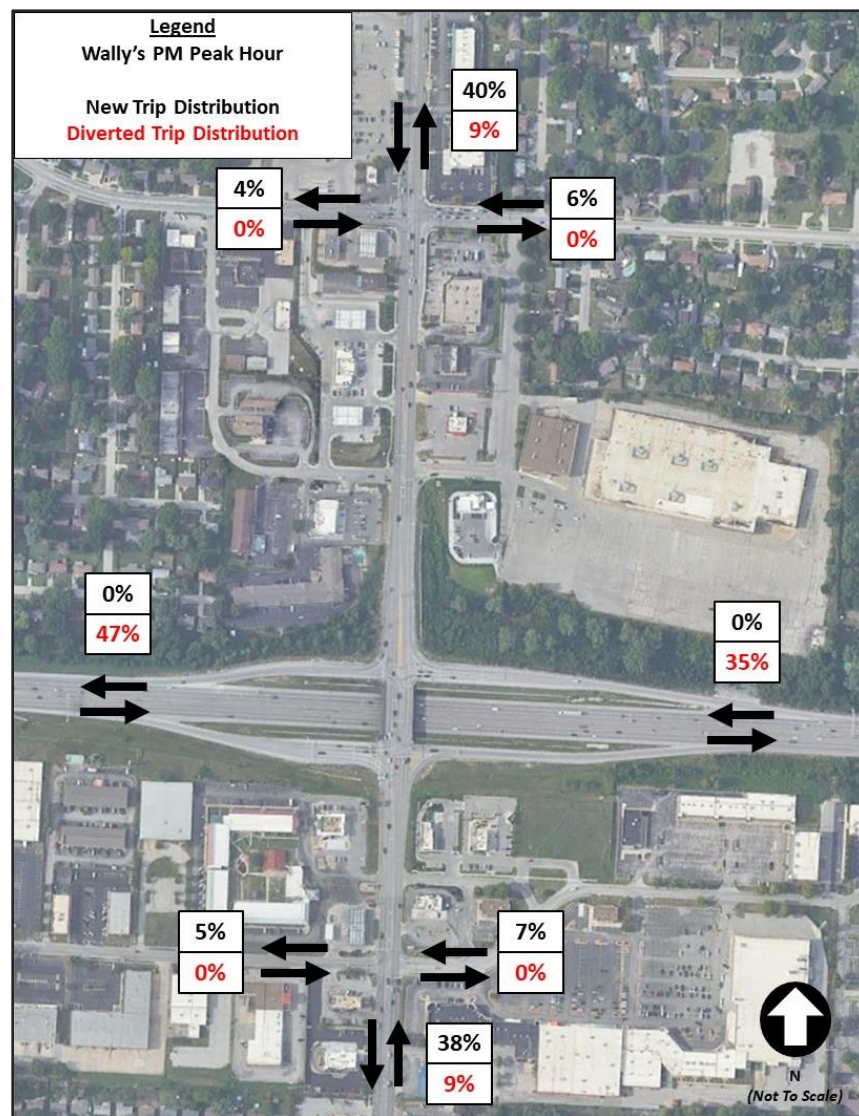
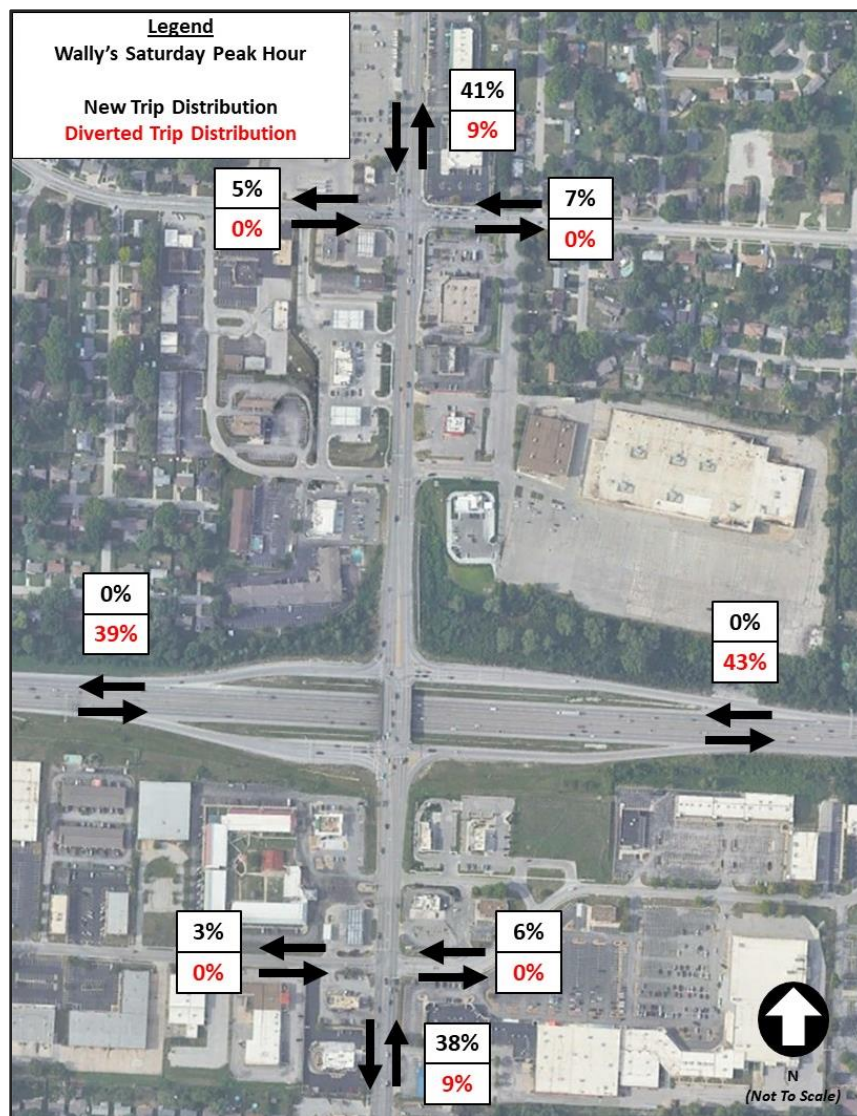
**Figure 10. Directional Distribution Percentages Applied to Proposed Wally's - Weekday PM**

Table 22. Directional Distribution Percentages Applied to Proposed Wally's – Saturday Middy

To/From	New Trip Distribution	Diverted Trip Distribution
I-70 to and from the east	0%	43%
I-70 to and from the west	0%	39%
Noland Road to and from the north	41%	9%
Noland Road to and from the south	38%	9%
39 th Street to and from east	7%	0%
39 th Street to and from west	5%	0%
42 nd Terrace to and from east	6%	0%
42 nd Terrace to and from west	3%	0%

**Figure 11. Directional Distribution Percentages Applied to Proposed Wally's – Saturday MD Peak Hour**

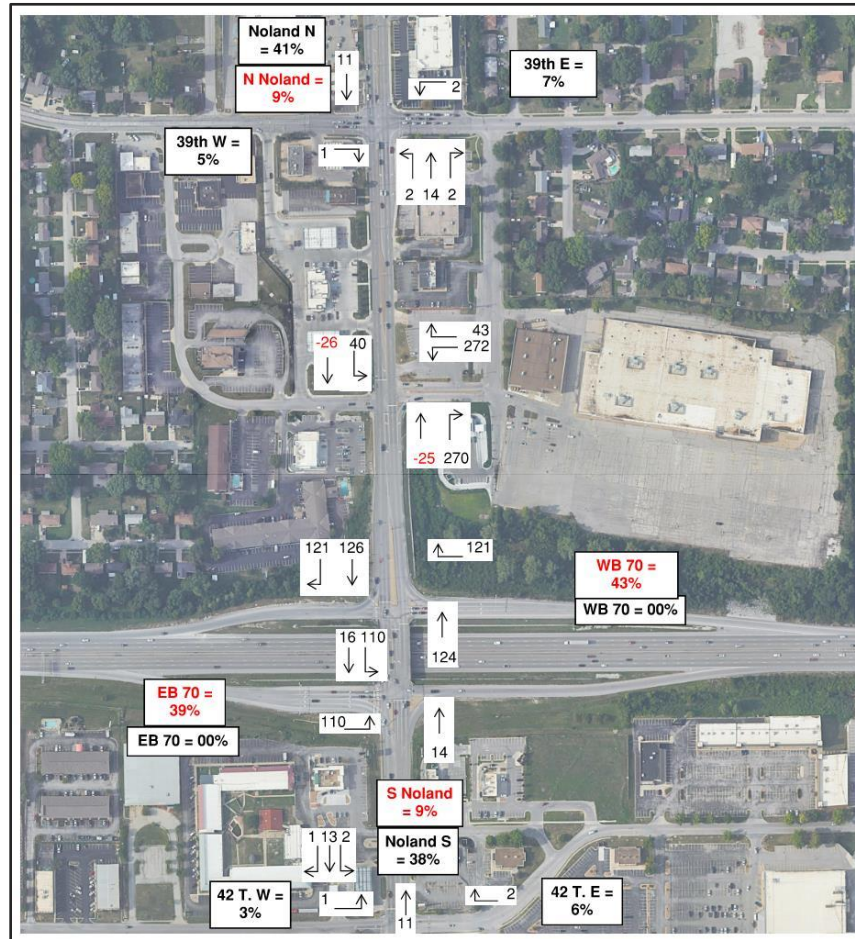


Figure 16. Wally's Site Generated Traffic – Saturday MD Peak Hour

SITE ACCESS AND INTERNAL CIRCULATION

The site access and internal circulation for the proposed development of the Wally's Travel Center was evaluated based on the provided site plan shown in **Figure 17**. The Wally's development will provide a retail space (54.0 KSF) and 84 fueling positions. The proposed site plan proposes access to Wally's primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street. No new access drives are proposed as part of this development.

It is recommended that the intersection of Noland Road and Lynn Court Drive be realigned to improve the existing offset. One left-turn lane and one shared through/right-turn lane is recommended for the eastbound approach. A median along the eastbound approach may be necessary to better align the eastbound and westbound approaches. Two left-turn lanes, one through lane, and one right-turn lane are recommended for the westbound approach. Care should be taken in design to ensure that the eastbound and westbound approaches signal operations can run concurrently rather than split phased, as is the case today. To do so, there should be adequate room for the left-turning movements to run concurrently. The northbound approach should be comprised of a left-turn lane, two through lanes, and

a right-turn lane. The southbound approach should be comprised of a left-turn lane, one through lane, and a shared through/right-turn lane. It is recommended that the striping for the southbound left-turn lane be extended to provide additional storage length; however, no changes to the existing median are recommended.

The internal site access drive of Lynn Court Drive and Canterbury Place should be placed under side-street stop-control where eastbound and westbound traffic along Lynn Court Drive travels freely and northbound and southbound traffic along Canterbury Place is required to stop. One shared left-turn/through lane and one shared through/right-turn lane are recommended for the eastbound and westbound approaches. Per the analysis, a single-lane approach would be adequate along for northbound and southbound traffic. However, additional turn lanes can be provided on the northbound or southbound approaches, if desired.

Consideration was given towards alternative intersection configurations at Lynn Court Drive and Canterbury Place. However, alternatives, such as a roundabout, would not operate as efficiently as the recommended configuration given the close proximity to the signalized intersection at Noland Road and the potential for queues to spill between the roundabout and the signalized intersection. Therefore, a roundabout is not recommended at Lynn Court Drive and Canterbury Place.

It is recommended that the existing unsignalized intersection of 39th Street and Canterbury Place be reconfigured to provide $\frac{3}{4}$ access by restricting the northbound left-turns via installation of a channelized island in the northbound approach. As shown in the Existing and No-Build conditions, the northbound approach would be expected to experience failing operating conditions even without the additional traffic from Wally's. As such, it is recommended that this secondary access drive restrict northbound left-turns to improve operations and safety. Similar to the intersection of Lynn Court Drive and Canterbury Place, alternative intersections, such as a roundabout, were considered. However, given the close proximity to the signalized intersection with Noland Road and the potential for queues to spill back from the signalized intersection, a roundabout is not recommended at 39th Street and Canterbury Place.

The proposed development was evaluated in accordance with Article 14-403 (Gasoline and Fuel Sales) within the Code of Ordinances for the City of Independence, Missouri. Requirements applicable to the proposed development of the Wally's development with respect to this traffic study are summarized below:

- Per Section 14-403-04, all driveways must be located and designed to ensure that they will not adversely affect the safety and efficiency of traffic circulation on adjoining streets. As shown, the proposed Wally's site will have both access points located directly off of Canterbury Place, providing space between the major roadways of Noland Road and E 39th Street. Additionally, as part of the Wally's development, the existing offset intersection of Noland Road and Lynn Court Drive would be realigned, and along with the recommended signal timing improvements and additional turn lanes, would ensure that the safety and efficiency of traffic circulation continues to operate acceptably.

- Per Section 14-403-08, the property containing a gasoline and fuel sales facility shall not be located within 750 ft of a property containing the following uses: Used car lot, Car wash, Motor vehicle repair (limited and general), Motor vehicle rental agency, Vehicle storage/tow lot, Tow lot, (limited), Heavy vehicle dealership, Gasoline and fuel sales. The property line of the proposed site does fall within the 750 ft requirement of a nearby gasoline and fuel sale business (QuikTrip gas station located at 4024 S Noland Road). However, as part of the Wally's site plan submittal, an amendment to the City's Unified Development Ordinance (UDO) was proposed that would remove this requirement for properties within 750 feet of an interstate. If the amendment is approved by the City, then the distance relative to the QuikTrip would no longer be relevant.

CONCLUSIONS

The preceding traffic impact study was completed per the requirements set forth by MoDOT and the City of Independence as a means of evaluating the potential traffic impacts associated with the proposed Wally's development near the interchange of I-70 with Noland Road. The intent of this study was to identify the traffic generation associated with the proposed development, analyze the associated traffic impacts, and determine the need for mitigation measures, as necessary.

The following conclusions were reached:

EXISTING AND NO-BUILD CONDITIONS

2024 EXISTING CONDITIONS

- The study intersections generally operate favorably in the 2024 Existing conditions. Some side-street approaches at unsignalized intersections along Noland Road experience long delays as they wait for gaps in traffic to complete their turning movement, but that is not uncommon during peak periods in suburban areas. Additionally, the southbound and northbound queues at the I-70 and Noland Road interchange extend past the adjacent ramp terminals, which is not uncommon with a tight diamond configuration. The southbound queue length on Noland Road from the I-70 ramp terminals does not extend past Lynn Court Drive, and the northbound queue does not extend past 42nd Terrace, indicating that the interchange does operate acceptably.
- Overall, the existing conditions indicate that there is adequate capacity at the study intersections.
- Under existing conditions, the study area has experienced 1,082 crashes between 2019 and 2023. The most common crash classification was Rear End accounting for 42% of all crashes. Other common types include Passing and Out of Control which were largely focused near the I-70 acceleration and deceleration lanes for ramp entrances and exits.
- The following recommendations were offered for consideration as a means of improving existing conditions along the Noland Road corridor:
 - Extending the existing acceleration lanes along I-70 at the Noland Road interchange,
 - Correcting the existing offset at the signalized intersection of Noland Road and Lynn Court Drive, and
 - Closing the existing southern Hardee's access drive along Noland Road due to its proximity to the signalized intersection with Lynn Court Drive.

2026 NO-BUILD CONDITIONS

- The year 2026 was used as the project's construction year for purposes of evaluating traffic operations conditions associated with the proposed development. No modifications were made to the existing lane configurations.
- An annual background growth rate of 0.35% for the overall study area and I-70 Corridor was used to forecast future traffic volumes (as agreed to by MoDOT and the City of Independence).

- Upon evaluation, in 2026 the overall study area would experience slightly worsened delays and queue lengths as compared to the 2024 Existing operations, but the network would still be expected to operate acceptably overall.
- Safety analysis models show the predicted number of crashes should be 135.5 annual crashes under 2026 No-Build conditions in the study area. The predicted analysis yielded a lower annual crash rate than the existing rate, thereby indicating the existing roadway network within the study area experiences more crashes as compared to other roadways of similar volume and characteristics.

2046 NO-BUILD CONDITIONS

- The year 2046 was used as the project's horizon design year for purposes of evaluating traffic operations conditions into the future at a planning-level. No modifications were made to the existing lane configurations.
- Upon evaluation, in 2046 the overall study area would experience worsened delays and queue lengths when compared to the 2024 Existing conditions and 2026 No-Build conditions. However, it is anticipated that operations overall within the network would still operate acceptably.
- Safety analysis models show the predicted number of crashes should be 150.5 annual crashes under 2046 No-Build conditions in the study area. This represents an increase of 15 crashes per year as compared to 2026 No-Build conditions, which is attributable to the increased number of vehicles in the roadway network.

PROPOSED DEVELOPMENT

- It is anticipated that the proposed Wally's would provide 84 fueling stations. The proposed Wally's is expected to generate the following trips during each of the critical time periods included in this study:
 - 660 total trips during the weekday AM peak hour
 - 709 total trips during the Truman High School Dismissal peak hour
 - 582 total trips during the Elementary School Dismissal peak hour
 - 632 total trips during the weekday PM peak hour, and
 - 625 total trips during the Saturday Midday peak hour
- Access to the site would be provided primarily via S Noland Road, opposite Lynn Court Drive. Secondary access would be provided via Canterbury Place, which provides access to E 39th Street.

RECOMMENDED IMPROVEMENTS

In conjunction with the proposed Wally's Travel Center, several roadway improvements are recommended. While some improvements would be necessary as a result of the traffic generated by the proposed Wally's, several improvements such as extending the existing acceleration lanes along I-70 at the Noland Road interchange and/or aligning the existing offset intersection of Noland Road with Lynn

Court Drive would be recommended regardless of the proposed development as a means of improving conditions (from both a traffic operations and safety perspective) along S Noland Road and/or I-70. Ultimately, it is recommended that the following roadway improvements be made prior to the opening of the Wally's Travel Center:

- I-70 EB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Extend the eastbound acceleration lane by a minimum of 145 ft.
- I-70 WB Ramps:
 - Provide 250 ft of taper plus at least 615 ft of full width parallel deceleration lane along I-70 that would tie into the existing off ramp.
 - Maximize the acceleration lane for the existing westbound on ramp to provide approximately 900 ft, inclusive of taper. Note that the proposed taper would end right before the guardrail for the existing railroad overpass. It should be noted that this length would still not meet AASHTO guidelines given the proximity of the railroad overpass. However, this extension would still represent an improvement as compared to existing conditions.
- Noland Road & I-70 EB Ramp Terminal:
 - Extend the existing four-lane section of the eastbound approach to a total of 400 ft measured from the stop-bar.
- Noland Road & I-70 WB Ramp Terminal:
 - Provide an additional westbound right-turn lane to ultimately provide two left turn lanes and two right turn lanes. The dual right-turn lanes should be signalized, allowing right-turns on red after stop. The right-turn lanes should feed into the two existing northbound through lanes.
- Noland Road & Lynn Court Drive:
 - Reconstruct the intersection to correct the existing offset and to allow for the eastbound and westbound approaches to run concurrently. The following lane configurations are recommended:
 - Eastbound Approach:
 - Provide a dedicated left-turn lane and a shared thru/right turn lane.
 - Westbound Approach:
 - Provide dual left-turn lanes, one through lane, and one right-turn lane.
 - Northbound Approach:
 - Provide one left-turn lane, two thru lanes, and one channelized right-turn lane.
 - Southbound Approach:
 - Provide one left-turn lane, one thru lane, and one shared through/right-turn lane.
 - Extend the striping for the southbound left-turn lane to increase the storage length, but do not modify the existing median.

- Provide new traffic signal structures, appurtenances, and pedestrian signalization (with the exception of the SE quadrant).
- Provide three southbound lanes immediately south of Lynn Court Drive and extending to the I-70 EB ramp terminal.
- Close the southernmost Hardee's access drive just north of this intersection to reduce conflicts within the signalized intersection.
- **Lynn Court Drive & Canterbury Place:**
 - Provide a stop-controlled intersection where northbound and southbound traffic is required to stop and eastbound and westbound traffic travels freely.
 - The following lane configurations are recommended:
 - **Eastbound Approach:**
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - **Westbound Approach:**
 - Provide one shared thru/left turn lane and one shared thru/right turn lane.
 - **Northbound Approach:**
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
 - **Southbound Approach:**
 - Provide a single-lane approach. Although should a left-turn lane be desired it would only be expected to improve operations.
- **39th Street & Canterbury Place:**
 - Restrict the unsignalized intersection to ¾ access (northbound left turn not permitted) via the construction of a channelized island on the northbound approach.
 - However, should the City of Independence desire, full access at this intersection could remain.
- **Noland Road & 42nd Street:**
 - Consideration should be given towards restricting left-turns for the eastbound and westbound approaches to improve the efficiency of this unsignalized intersection. The existing left-turning vehicles can divert to the signalized intersection of 42nd Terrace.
- **Signal Timing Improvements:**
 - Signal timing improvements along the Noland Road corridor are recommended prior to the Wally's Travel Center being in place. It is anticipated that all cycle lengths, with the exception of the Saturday midday, would remain the same. It is recommended that the Saturday midday cycle length be adjusted from 100 seconds to 110 seconds. A full signal timing progression analysis and implementation along the Noland Road corridor is recommended. It should be noted that coordination between Operation Green Light (OGL) will be necessary prior to the implementation of the new signal timings.

2026 AND 2046 FORECASTED CONDITIONS

The results and conclusions for the following scenarios assume the full build of the proposed Wally's Travel Center is in place in addition to the recommended improvements previously stated.

2026 FORECASTED CONDITIONS

- The year 2026 was used as the construction year for evaluating near-future traffic conditions.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately. Side-street approaches would continue to operate with long delays similar to the 2026 No-Build conditions.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place. The additional westbound right-turn lane at the westbound ramps adds capacity to the interchange, improving the operations. The southbound queue length at the eastbound ramps would be expected to extend past the westbound ramp terminal. However, the average queue length would not be expected to extend past Lynn Court Drive.
- The realigned intersection of Noland Road and Lynn Court Drive would be expected to operate at an overall LOS B during all peak hours. The average westbound queue length would be well contained within the existing laneage. However, during peak periods, the max westbound queue would extend past Canterbury Place periodically.
- The internal intersection of Lynn Court Drive and Canterbury Place would be expected to operate well with minimal queues.
- Under the 2026 No-Build conditions, the northbound approach at Canterbury Place and E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS E, but with the recommended northbound left-turn restriction in place, the approach would improve to a LOS B in the 2026 Forecasted conditions.
- Overall, it was concluded that with the recommended improvements in place, the roadway network in the year 2026 will operate acceptably and have adequate capacity with the proposed Wally's in place.
- Safety analysis models show the 2026 Forecasted conditions should result in 138.3 crashes per year in the study area. This is a *minimal* net increase of 2.8 crashes per year as compared to the 2026 No-Build conditions. The minimal increase in crashes is simply due to the increased number of vehicles entering Noland Road to access Wally's that otherwise would not be present under No-Build conditions. Freeway crashes are slightly *reduced* under 2026 Forecasted conditions due to the increased acceleration and deceleration lengths and the lower volumes under the Noland Road interchange (traffic diverted to the proposed Wally's).

2046 FORECASTED CONDITIONS

- The 2046 Forecasted conditions are similar to the 2026 Forecasted conditions with generally acceptable operating conditions throughout the study area.
- The Noland Road corridor (35th Street to 42nd Terrace) is expected to continue to operate at an overall LOS D or better at signalized intersections, while most unsignalized intersections function adequately.
- The I-70 and Noland Road interchange would be expected to operate acceptably with the Wally's Travel Center in place with an overall LOS C or better for both ramp terminals.
 - The maximum queue lengths for the northbound and southbound approaches would be expected to extend past the adjacent ramp terminals to Lynn Court Drive and 42nd Street. However, the average queue length would not extend past these intersections.
- The intersection of Noland Road and Lynn Court Drive would be expected to continue to operate at an overall LOS B during all peak periods. The average queues would not be expected to extend past nearby intersections and the v/c ratios indicate that there is surplus capacity at this intersection despite the addition of Wally's. However, it should be noted that during peak periods, the max westbound queue would extend past Canterbury Place periodically.
- The internal intersection of Lynn Court Drive and Canterbury Place would also be expected to operate well with a LOS C or better for each approach.
- Under the 2046 No-Build conditions, the northbound approach at Canterbury Place & E 39th Street during the Elementary School Dismissal periods would be expected to operate at a LOS F, but with the recommended northbound left-turn restriction in place, the approach would operate at a LOS B through the year 2046.
- Compared to the 2046 No-Build scenario, the overall roadway network would operate acceptably, and with signal timing modifications and lane configuration changes, some of the roadway network would experience shorter delays and queues.
- Safety models predict an annual crash rate of 151.8 crashes per year under 2046 Forecasted conditions. This is a *minimal* net increase of 1.8 crashes per year over the 2046 No-Build. Similar to the 2026 Forecasted conditions comparison, the increase in total crashes is due to the increased number of vehicles attracted to Noland Road due to Wally's that otherwise would not be present on the roadway. The net increase in crashes is minimal at less than 1% per year as compared to No-Build conditions.

Overall, it was concluded that with the recommended improvements in place, the roadway network can accommodate the proposed Wally's through the year 2046.



Preliminary Stormwater Analysis

Wally's
4023 S. Noland Road
Independence, MO 64055

Date: 06/24/2025
Cole Project Number: 24-0011



1520 S. FIFTH STREET, SUITE 307
ST. CHARLES, MO 63303
T: 636-978-7508

Cole & Associates, Inc. is a Missouri Corporation d.b.a. Cole Design Group, Inc. in Arizona, herein referred to as "Cole"

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- **EXECUTIVE SUMMARY**
 - A. Detention
 - B. Water Quality

- **APPENDICES**
 - A. Preliminary Detention Basin Drainage Area Map
 - B. Hydrograph Reports
 - 2 Year
 - 10 Year
 - 100 Year

EXECUTIVE SUMMARY

The proposed Wallys site has a total acreage of 18.94 consisting of a 53,960 square foot convenience store, 42 fuel dispenser islands, and 306 parking spaces. The site has a proposed imperviousness of approximately 58%. This is a decrease from existing conditions which has an imperviousness of approximately 85%.

It has been determined that approximately 14.5 acres of the total site can be collected for detention. Of which, approximately 11 acres can be collected for water quality treatment. The stormwater management information below is preliminary and subject to change. A full stormwater management report will be provided as part of the final design for this project.

Detention

Above ground detention will be provided to meet the maximum release rates adopted by the City of Independence from the 2011 APWA Section 5600 for Storm Drainage Systems & Facilities Requirements. Per said manual, the SCS method was used to determine the post-development runoff for the proposed 14.5-acre drainage area. Please refer to Appendix A for the proposed detention basin drainage area and Appendix B for the 2-, 10-, and 100-year hydrograph reports.

Per the below calculations, it is estimated that Wally's will be allowed a 100-year release rate of 43.5 CFS. This will require approximately 295,300 cubic feet of storage which can be provided within the 2.75 acres of allotted detention area.

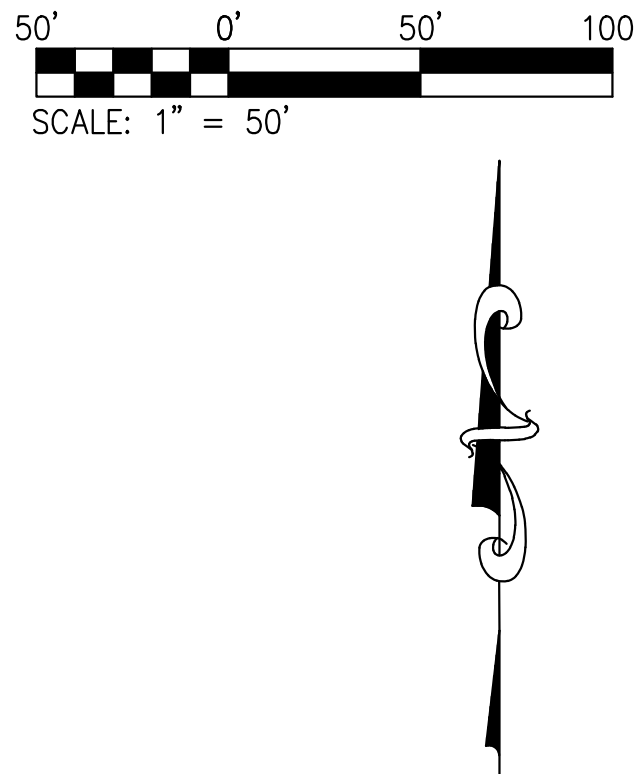
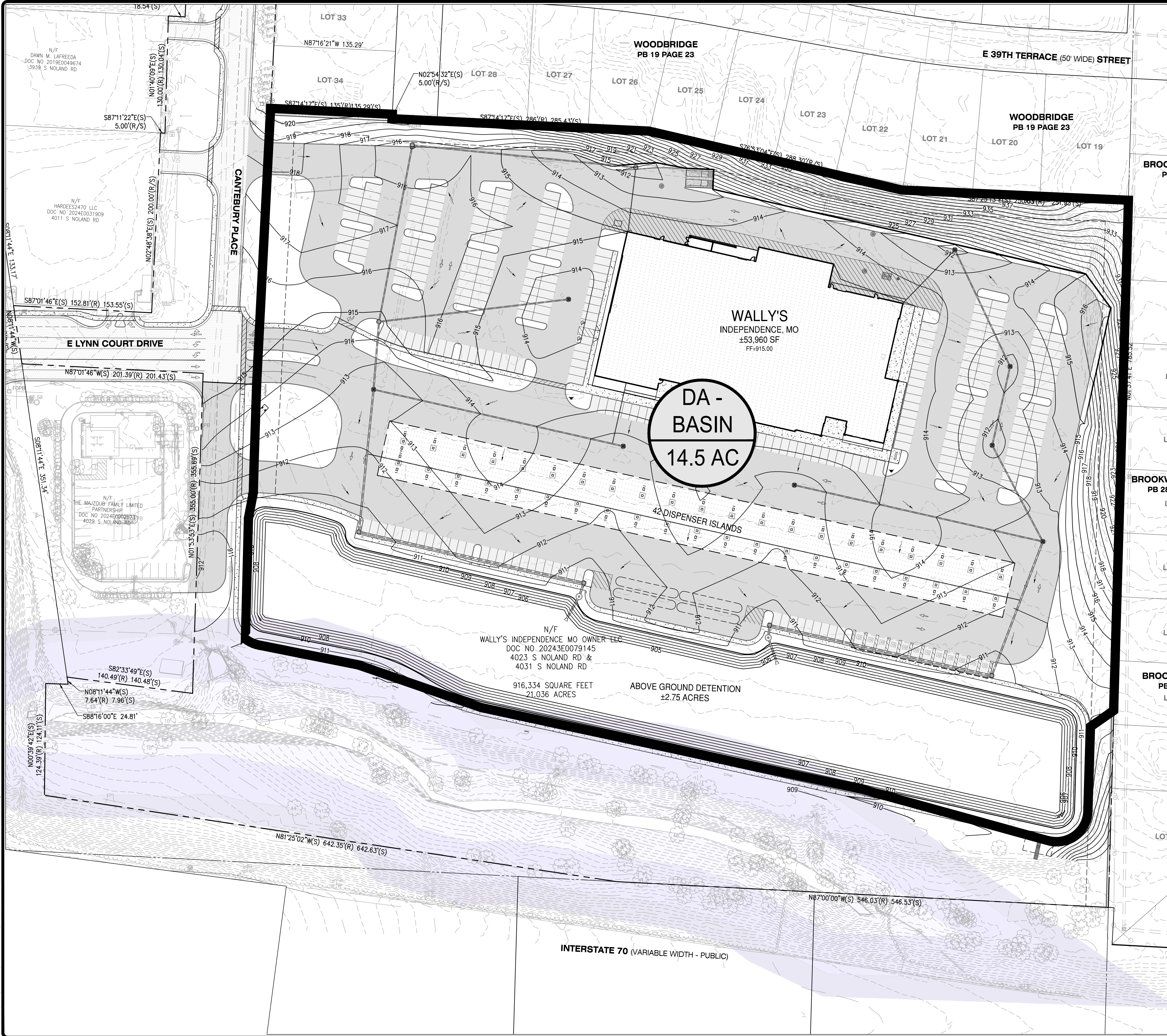
- 50% (2yr) storm peak rate $\leq$ 0.5 CFS per site acre
 - o 0.5 CFS x 14.5 acres = 7.25 CFS
- 10% (10yr) storm peak rate $\leq$ 2.0 CFS per site acre
 - o 2.0 CFS x 14.5 acres = 29.0 CFS
- 1% (100yr) storm peak rate $\leq$ 3.0 CFS per site acre
 - o 3.0 CFS x 14.5 acres = 43.5 CFS

Water Quality

The City of Independence has adopted the APWA MARC Manual for Stormwater Quality. The MARC Manual uses the "level of service" method for determining the amount of treatment required. Given the existing site conditions being mostly impervious area, the "level of service" method does not apply. However, water quality treatment will be provided in the form of hydrodynamic separators to address oil & grease, suspended solids, trash etc. prior to discharging in the proposed detention basin. Treatment capacity calculations and product specifications will be provided within the full stormwater management report as part of the final design for this project.

APPENDIX A
Preliminary Detention Basin Drainage Area Map

USER: Lindsey Diekmeyer TAB: Exhibit
DATE: June 18, 2025 - 4:16:53 PM
DRAWING: S:\JOBS\Job2024\24-0011\CADD\Civil\Plan\GRADE-UTIL_24-001.dwg



DEVELOPER/OWNER: WALLY'S INDEPENDENCE, MO OWNER LLC 950 ASSEMBLY PARKWAY FENTON, MO 63026 PHONE # (312) 730-0866		DATE	NO	REVISION DESCRIPTION
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON HEREBY CERTIFIES THAT THIS DRAWING WAS PREPARED BY HIMSELF OR UNDER HIS CLOSE PERSONAL SUPERVISION AND THAT HE IS A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI. ANY OTHER DOCUMENTS OR INSTRUMENTS NOT SPECIFICALLY REFERENCED HEREON, SUCH AS SPECIFICATIONS, REPORTS, OR OTHER DOCUMENTS, ARE HEREBY INCORPORATED BY REFERENCE INTO THIS DRAWING. FOR ANY PART OF THIS PROJECT TO WHICH THIS SEAL DOES NOT APPLY.				
This document is released for preliminary review only under the authority of Lindsey F. Diekmeyer P.E.-2024026198 on 06/24/2025. It is not to be used for bidding, construction or permitting purposes.				
WALLY'S 4023 S. NOLAND ROAD INDEPENDENCE, MO 64055		PRELIM BASIN DRAINAGE AREA		
COLE + ST. CHARLES 1320 S. Fifth Street Suite 307 St. Charles, MO 63303 636.976.7508 ext. www.colellc.com CIVIL ENGINEERING / SURVEYING / PLANNING / LANDSCAPE ARCHITECTURE 7/81 ADA TRANSITION PLANNING Registered Professional Engineer and Land Surveyor Missouri Professional Engineer #10193871 Missouri Professional Land Surveyor #00231 and Survey Corporation #10193871 Caleb Cole, Inc. is an Equal Opportunity Employer. All rights reserved. No part of this drawing may be reproduced without written permission from Cole, Inc.				
DESIGN/CALC BY: LFD				
DRAWN BY: MRS				
CHECKED BY: ALA				
DRAWING SCALE: AS SHOWN				
DATE: 06/24/2025				
Job Number: 24-0011				
Sheet Number: EX				

APPENDIX B
Hydrograph Reports

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Wednesday, 06 / 18 / 2025

Hyd. No. 1

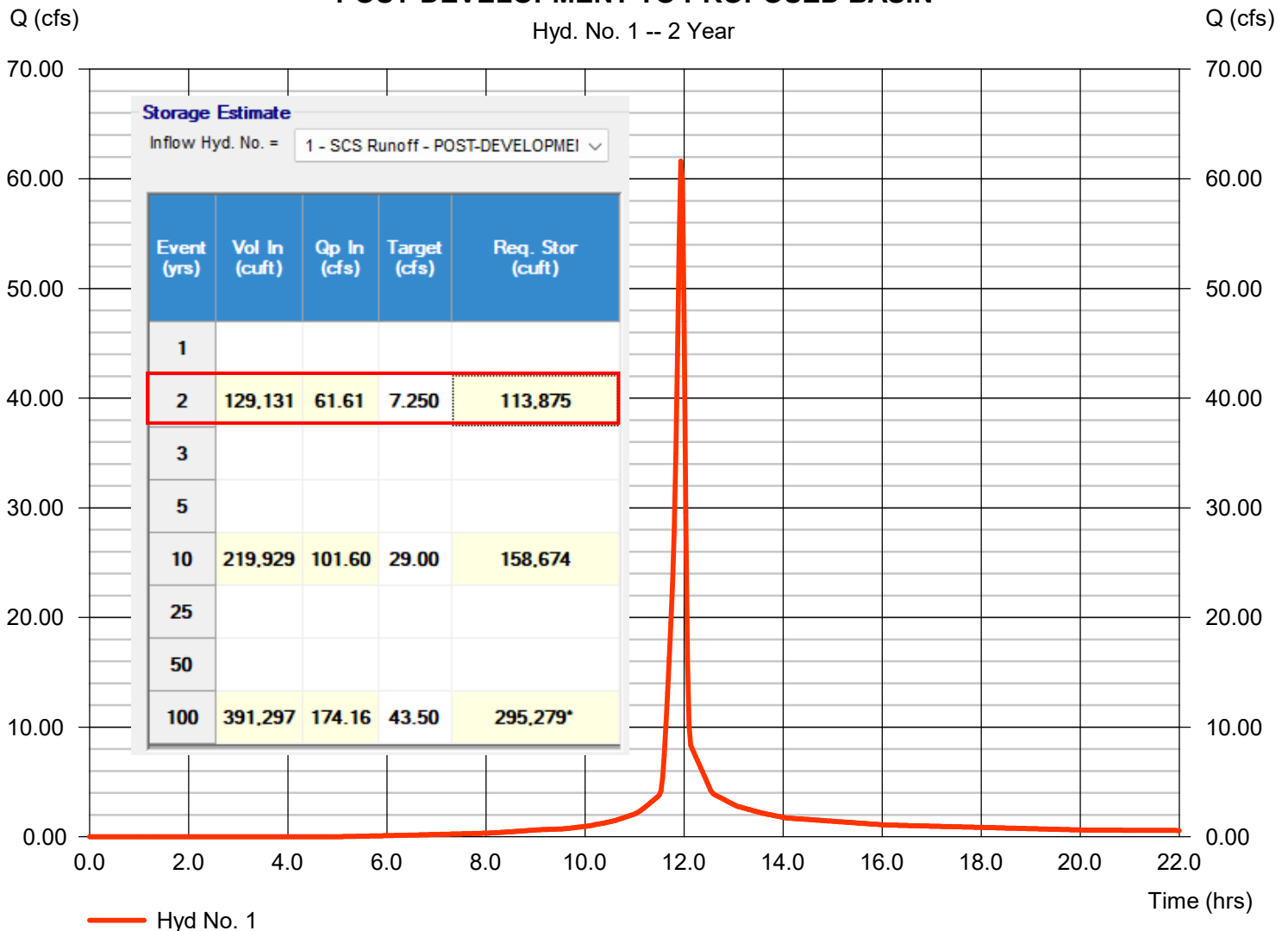
POST-DEVELOPMENT TO PROPOSED BASIN

Hydrograph type = SCS Runoff
Storm frequency = 2 yrs
 Time interval = 2 min
 Drainage area = 14.500 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 3.68 in
 Storm duration = 24 hrs

Peak discharge = 61.61 cfs
 Time to peak = 11.93 hrs
 Hyd. volume = 129,131 cuft
 Curve number = 90*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5.00 min
 Distribution = Type II
 Shape factor = 484

* Composite (Area/CN) = $[(9.300 \times 98) + (5.200 \times 77)] / 14.500$

POST-DEVELOPMENT TO PROPOSED BASIN



Hydrograph Report

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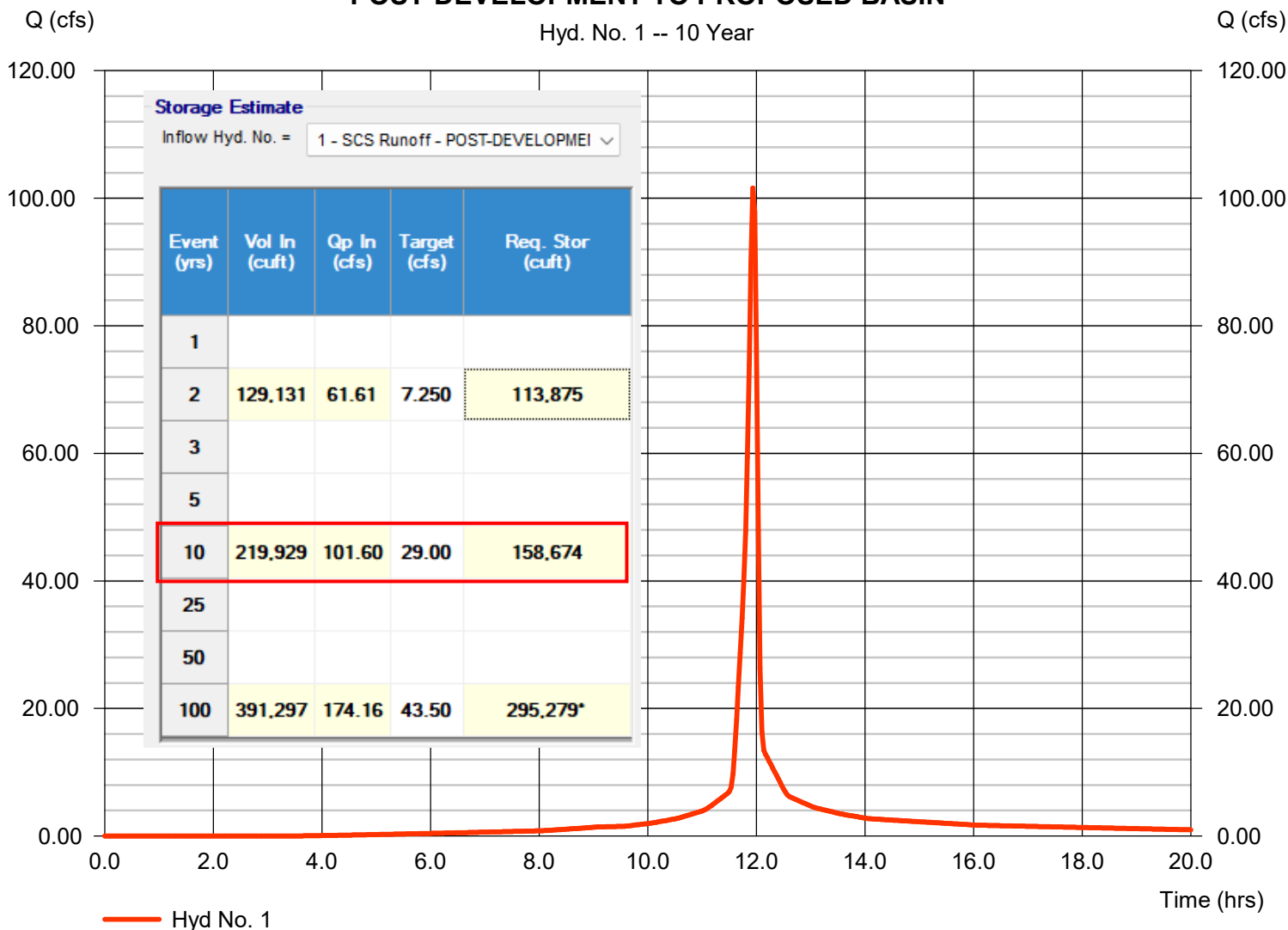
POST-DEVELOPMENT TO PROPOSED BASIN

Hydrograph type = SCS Runoff
Storm frequency = 10 yrs
 Time interval = 2 min
 Drainage area = 14.500 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 5.60 in
 Storm duration = 24 hrs

Peak discharge = 101.60 cfs
 Time to peak = 11.93 hrs
 Hyd. volume = 219,929 cuft
 Curve number = 90*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5.00 min
 Distribution = Type II
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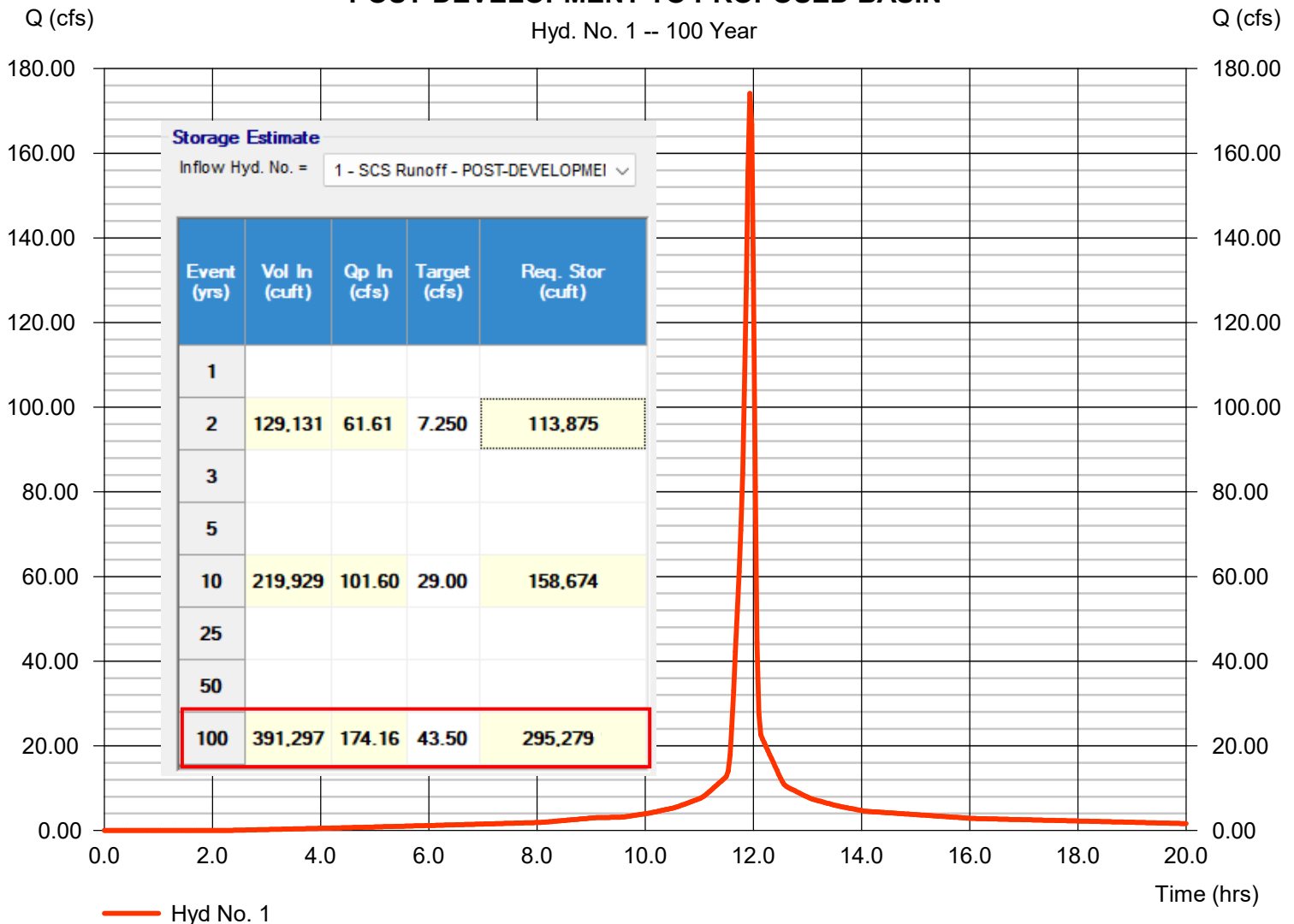
POST-DEVELOPMENT TO PROPOSED BASIN

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 2 min
 Drainage area = 14.500 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 9.14 in
 Storm duration = 24 hrs

Peak discharge = 174.16 cfs
 Time to peak = 11.93 hrs
 Hyd. volume = 391,297 cuft
 Curve number = 90*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5.00 min
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POST-DEVELOPMENT TO PROPOSED BASIN





Preliminary Stormwater Analysis

Wally's
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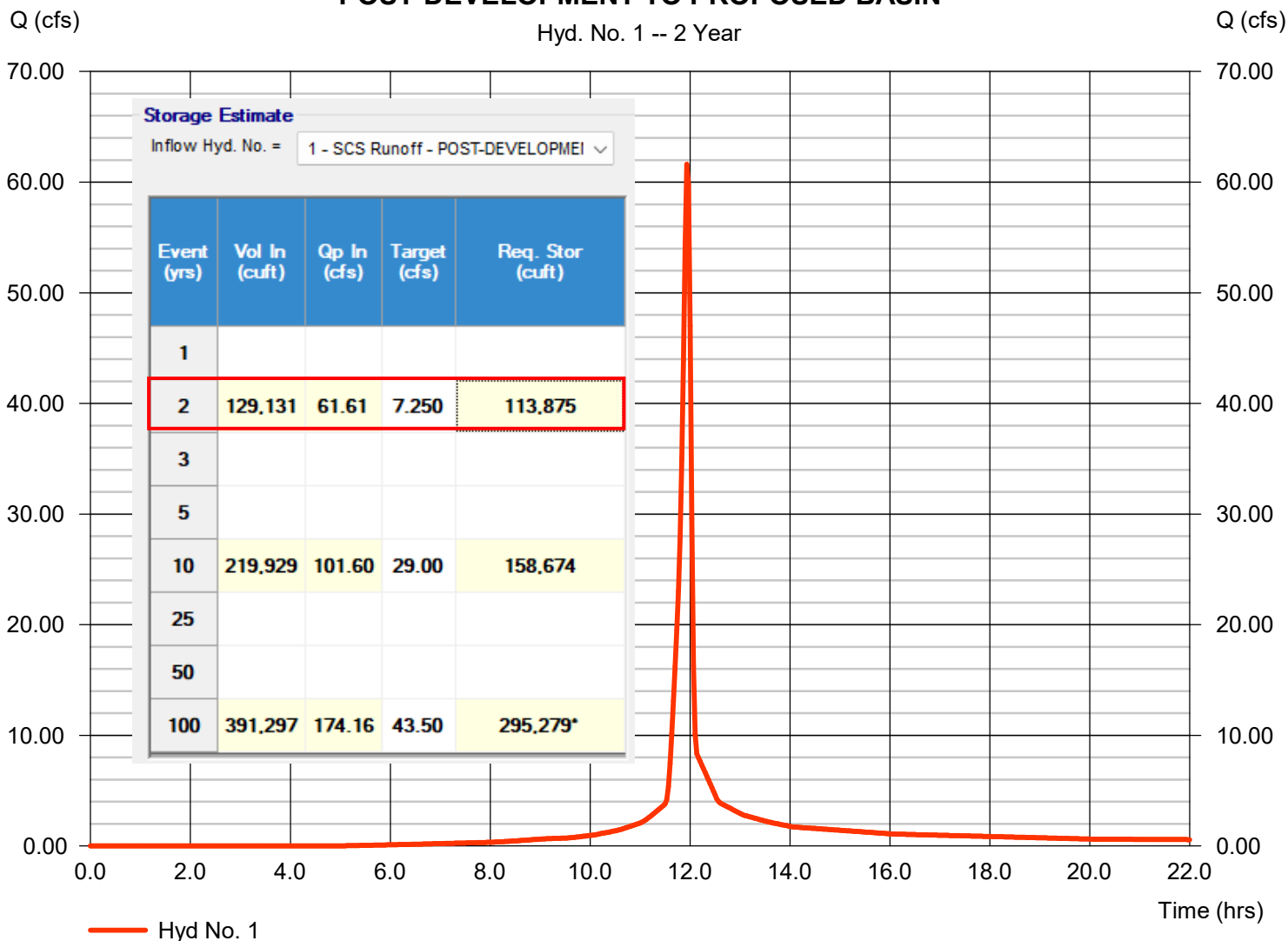
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Hydrograph type = SCS Runoff
Storm frequency = 2 yrs
 Time interval = 2 min
 Drainage area = 14.500 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 3.68 in
 Storm duration = 24 hrs

Peak discharge = 61.61 cfs
 Time to peak = 11.93 hrs
 Hyd. volume = 129,131 cuft
 Curve number = 90*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5.00 min
 Distribution = Type II
 Shape factor = 484

* Composite (Area/CN) = $[(9.300 \times 98) + (5.200 \times 77)] / 14.500$

POST-DEVELOPMENT TO PROPOSED BASIN



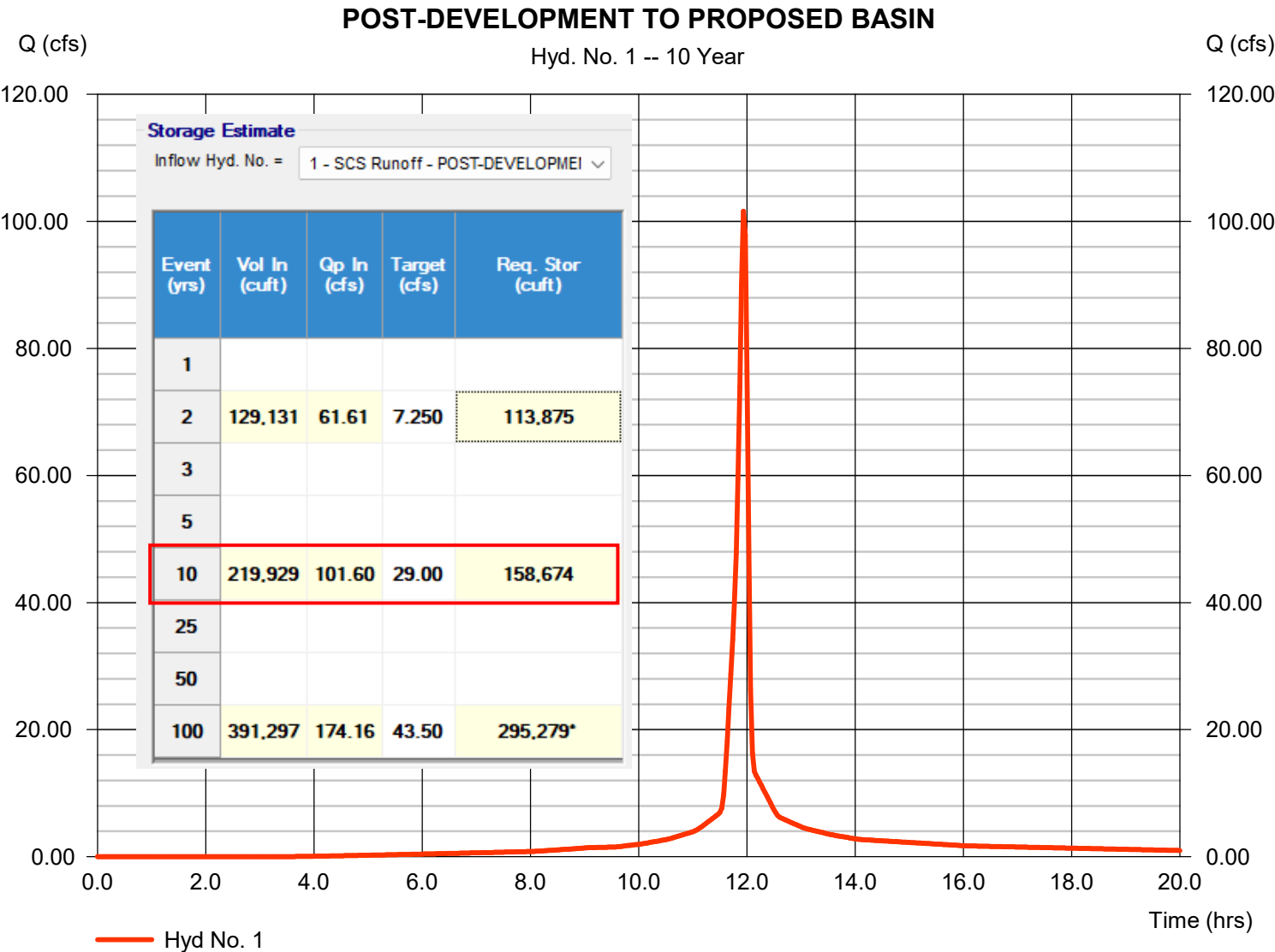
Hydrograph Report

Hyd. No. 1

POST-DEVELOPMENT TO PROPOSED BASIN

Hydrograph type	=	SCS Runoff	Peak discharge	=	101.60 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	219,929 cuft
Drainage area	=	14.500 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(9.300 x 98) + (5.200 x 77)] / 14.500



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

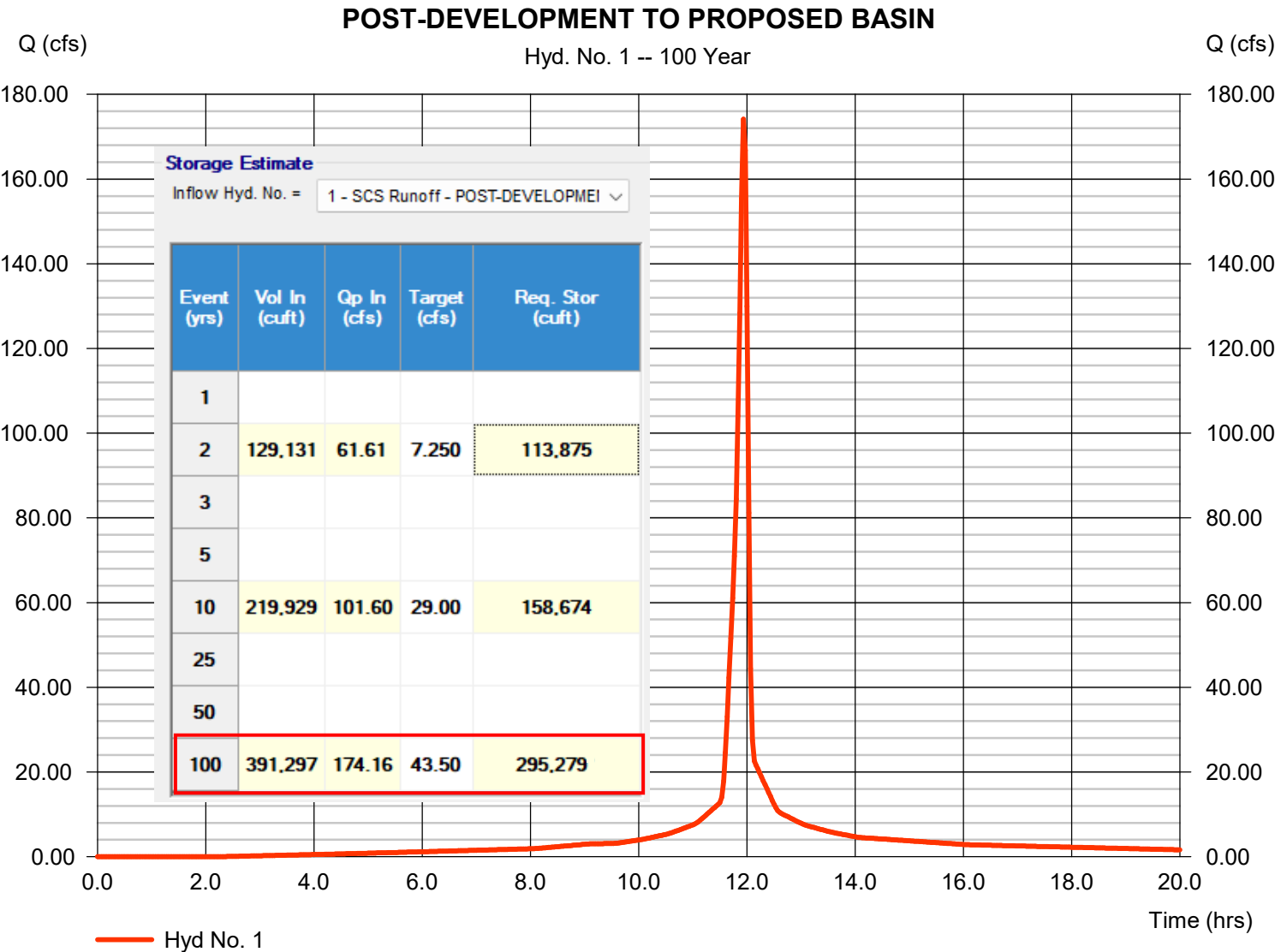
Wednesday, 06 / 18 / 2025

Hyd. No. 1

POST-DEVELOPMENT TO PROPOSED BASIN

Hydrograph type	=	SCS Runoff	Peak discharge	=	174.16 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	391,297 cuft
Drainage area	=	14.500 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	9.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

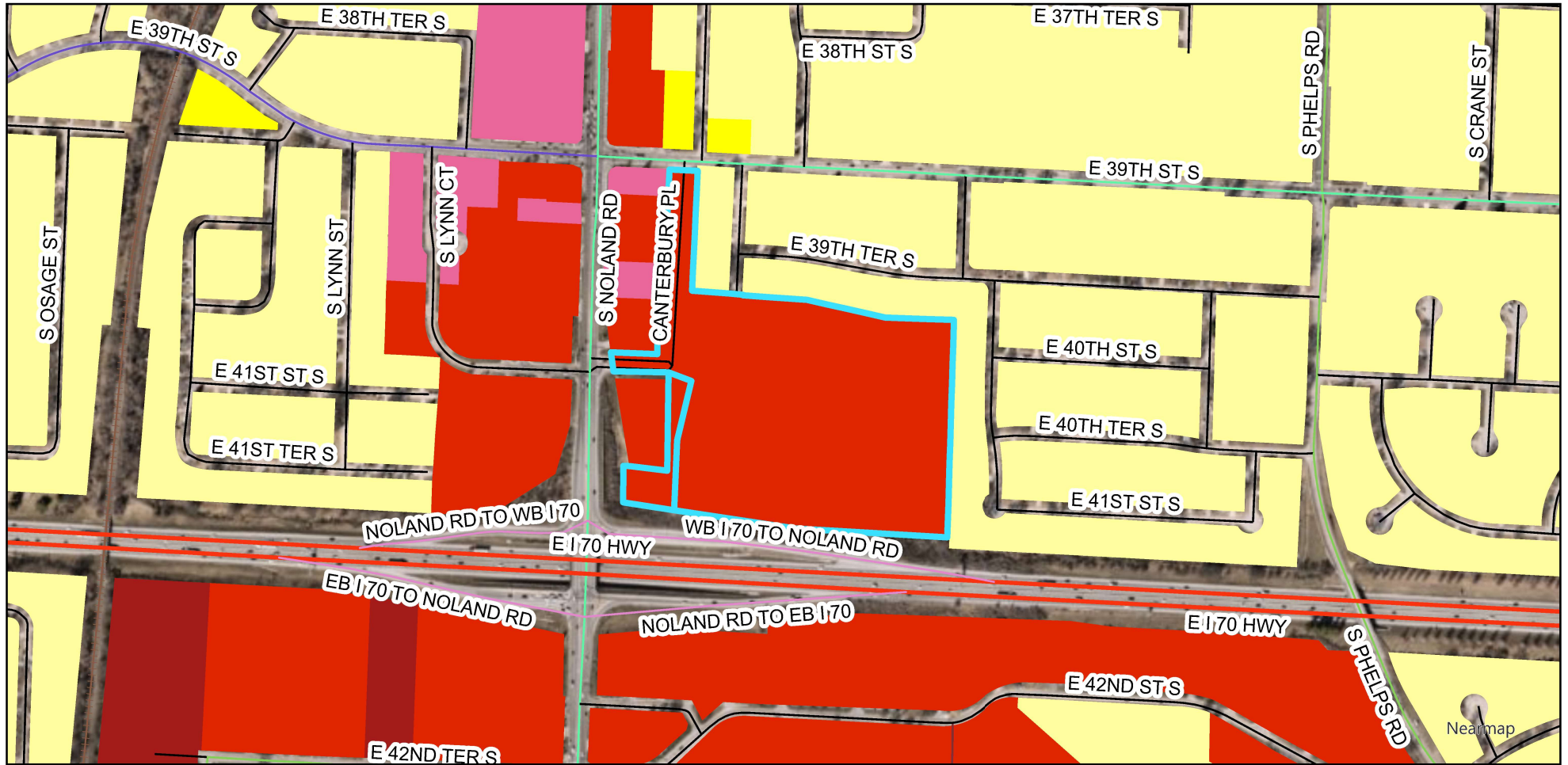
* Composite (Area/CN) = [(9.300 x 98) + (5.200 x 77)] / 14.500



Zoning Map

4023 S Noland Rd

Case #25-200-07



Legend

 Subject Site	 C-2	 R-6
Zoning District	 C-3	
 C-1	 R-12	

0 250 500 1,000 US Feet

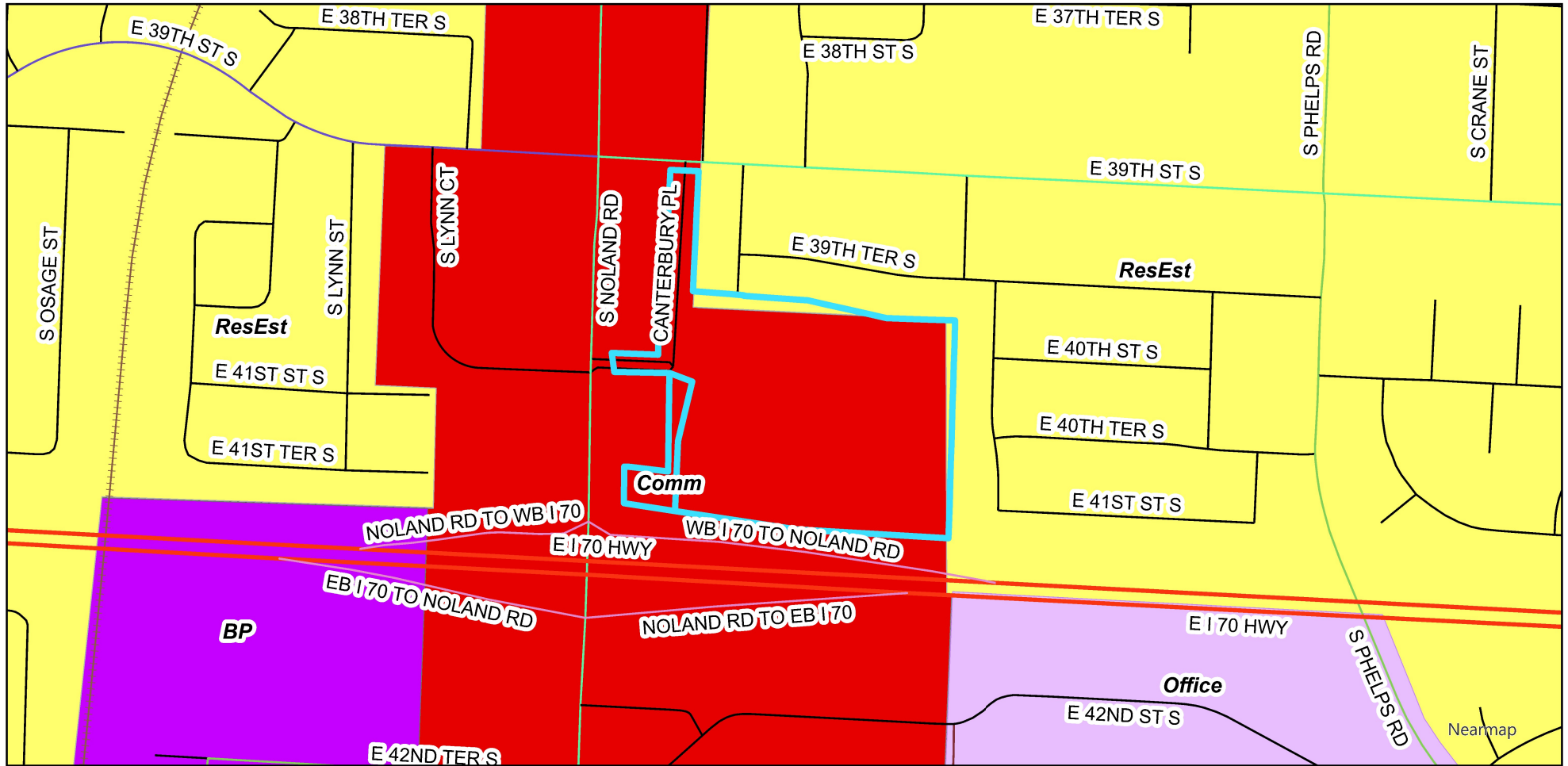
Prepared For: Planning Commission
Meeting Date: August 26, 2025



Comprehensive Plan

4023 S Noland Rd

Case #25-200-07



Legend

 Subject Site

Comprehensive
Plan

Residential
Neighborhoods

Community
Commercial

Office

Business Park

0 250 500 1,000 US Feet
|-----|-----|-----|-----|

Prepared For: Planning Commission
Meeting Date: August 26, 2025

