100 NORTH MAIN STREET
O'FALLON, MISSOURI 63366
636.240.2000
FACSIMILE 636.978.4144
www.ofallon.mo.us

January 13, 2020

Dear Consultant:

The City of O'Fallon, MO is requesting the services of a consulting engineering firm to perform the described professional services for the project included on the attached list.
If your firm would like to be considered for these consulting services, you may express your interest by responding to the appropriate office, which is indicated on the attachments. Limit your letter of interest to no more than five pages. This letter should include any information which might help us in the selection process, such as the persons or team you would assign to each project, the backgrounds of those individuals, and other projects your company has recently completed or are now active. It is required that your firm's Statement of Qualification (RSMo 8.285 through 8.291) be submitted with your firm's Letter of Interest, or be on file with with the City of O'Fallon. The statement of qualification is not included in the total page count limit (but should also not be lengthy).

Please ensure that relevant, similar projects are included as part of the evaluation process.

DBE firms must be listed in the MRCC DBE Directory located on MoDOT's website at www.modot.gov, in order to be counted as participation towards an established DBE Goal. We encourage DBE firms to submit letters of interest as prime consultants for any project they feel can be managed by their firm.

It is required that your firm be prequalified with MoDOT and listed in MoDOT's Approved Consultant Prequalification List, or your firm will be considered non-responsive.

We request all submittals be received by 3:00 pm local time, January 24, 2020, via email.

Sincerely,

Jeff Schuepfer
Asst. City Engineer

Attachment

City/CountyO'Fallon, MO / St. Charles County - Route DD	
Federal Aid No:	J6S3509 / STP-7302(684)
Location:	Route DD from the intersection of Winghaven Boulevard and Technology Drive to approximately 1,100 feet east of Castlewood Estates Drive
Proposed Improvement:	See attached information
Length:	1,100 feet
Approximate Construction Cost:	$ 3,143,342
DBE Goal Determination:	Sixteen percent (16%)
Consultant Services Required:	See attached General Scope of Work
Other Comments:	Interviews and/or presentation may be required as part of the consultant selection process. **Project Schedule for Consultant Selection:** Letters of Interest due – January 24, 2020 Staff short list and notify consulting firms – January 31, 2020 Interviews and/or presentations (if needed) – week of Feb. 3, 2020 Final selection and notification – week of Feb. 3, 2020 Negotiate scope and fee – Feb 7-12, 2020 City Council Approval – Feb 27, 2020 Notice to Proceed – Late March 2020 (see the last page of this RFQ for a continuation of project dates) Funding will come from a variety of sources including, but not limited to City, County, State Cost Share. Therefore all regulations and processes regarding the utilization of these funding sources will apply such as the Local Public Agency (LPA) manual. It is anticipated that this project will require full Federal oversight by FHWA. Stakeholders include City of O'Fallon, St. Charles County and the Missouri Department of Transportation and all stakeholders will be involved throughout the project. It will be essential to coordinate closely with these stakeholders throughout the duration of the project.
Contact:	Name: Jeff Schuepfer Address: 100 North Main St 63366 Phone: 636-379-5491

	Email: jschuepfer@ofallon.mo.us
Deadline:	**January 24, 2020, 3pm local time.**

- A full copy of the Cost Share application, which was the basis of the award, is being provided for reference. All of the attachments, including the cost estimates and traffic studies are included.
- Submit: Letter of interest should not exceed five pages total. A page is defined as 8-1/2 by 11 inches and printed on one side. The City strongly prefers to receive the Letter of interest electronically, in PDF format, via email. In the event that files cannot be emailed, the City will consider a disc (CD or DVD) or a link to a safe cloud file location to download the file. Please note that the Consultant is still responsible to ensure that their Letter is in full possession by the City in order to be eligible.

Pursuant to the Brooks Act for Consultant Selection – the following criteria will be the basis for selection. Additional criteria can be added with the approval of Central Office Design- MoDOT.

Experience and Technical Competence -	20	Max Points
Capacity and Capability -	20	Max Points
Past Record of Performance –	20	Max Points

Fig 136.4.7 Oct 2019

Background/General Project Information

Highway DD is a major east-west corridor in St. Charles County but it is only two lanes for most of it. The section just south of I-64 carries most of the traffic especially from all of the residential development along the Sommers Road corridor. There is also a newer soccer park complex with a new restaurant and other future commercial developments in this immediate area.

For the City of OFallon, this area along Highway DD, Sommers Road, and areas further west have been the most developing area in the last 5-10 years as well, and new developments continue to come in this area. This is in very close proximity to I-64, where there is good frontage available for sites to develop and where traffic will be higher.

Due to increased traffic in the area and a lack of capacity improvements being performed over the years, the City of OFallon has sought CMAQ funding to convert the three-way intersection of Sommers and Highway DD to a signalized intersection. This project has been funded and will be ready for construction and will be completed in 2019. Additionally, the City of OFallon has also performed other intersection improvements (364 and Sommers, 364 and Hawk Ridge Trail which also happened to be a Cost Share-funded project with us), resulting in successful projects. Our past relationship with MoDOT on these projects is good and the City is equipped to manage this project as well. These projects have benefited the MoDOT system and the federal grant funds have helped reduce the total cost that each party has had to make.

A proposed residential development would add over 650 homes and more traffic in these areas. 100 acres of commercially zoned properties are also being preserved along the I-64 frontage, which ties into the proposed outer road along with a future hotel.

The residential development would construct Caledonia Pkwy up to the stub at the northern limits, which would serve as an interim outer road. That connection will bring more traffic to Hwy DD. The future outer road is a separate project and not part of this application.

The new Caledonia development will spill over onto Winghaven Blvd as well, as motorists exiting I-64 will face further delays. The traffic study outlines the overall improvements needed, which this application seeks to address.

These improvements would improve traffic flow for existing and proposed developments, and the quadrant at the southwest of Highway DD and I-64 is a prime location for a large development to prosper. By constructing these improvements, the current traffic congestion is improved while also paving the way for future developments in the area ahead of the demand. The capacity is increased along Route DD with the additional lanes, which will help service the area into the future. Currently Highway DD is only two lanes wide with minimal shoulders so this project should improve safety by improving pavement width.

General Scope of Work and Qualifications

Submitting firms must have **extensive** experience with the designing and preparation of plans for projects involving work on interstate and highway systems. They must also have **extensive** experience working with Federal Highway and MoDOT.

Submitting firms should also have significant experience working for and with City Municipalities, and with the preparation of plans as may be associated with arterial roadway improvement projects. It is expected that the firm develop plans and specifications that are in a MoDOT format.

The submitting firm must be dedicated to meeting or exceeding the schedule, provided in this letter of interest, and must have the available capacity to dedicate the needed staff to meeting the schedule within their daily workload. The established fee should be based on the consultant dedication of time to complete the task during standard workday hours. The City is not interested in nickel-and-diming this project through the design phase, so the City is asking for competent firms who can anticipate the needs of the project upfront, and provide a complete project. There are critical dates that need to be adhered to. Firms will be asked during this process if the anticipated schedule can be met as part of the contract.

Extensive background work has already been prepared, as it was needed for the Cost Share application. A traffic study has been prepared and other exhibits depicting the proposed improvements, have also been prepared, and are attached to this solicitation for reference.

Tasks included, but are not limited to:

- Preparation and submittal of Environmental Clearances and/or NEPA Reports. This includes Section 106, Threatened and Endangered species, etc.
- Preparation of and Submittal of all documents to the appropriate permitting agencies (including but not limited to the water, sewer, fire, school districts, USACE, DNR, and MoDOT permitting)
- Firm is expected to be aware of all of the required submittals, or seek MoDOT's input of any uncommon agencies or permits.
- Survey work, including location survey for any new ROW acquired, and assistance with conveying any right-of-way to MoDOT.
    - Subsurface exploration may be needed for certain utilities to be identified.
- Geotechnical investigation and reports. This may also include establishment of the recommended pavement section. It is expected that the firm may have to hire a testing agency as their subcontractor.
- Construction materials testing (as part of construction engineering). It is expected that the firm may have to hire a testing agency as their subcontractor.
- Preliminary design, including ADA accessibility. Firm should be expected to submit preliminary design to MoDOT, City, and other permitting agencies or utilities for comments, and should incorporate comments.
- Signal and roundabout design, and an analysis of the most-suited intersection device that should be used and approved with MoDOT. The City is not sure if the roundabout as

shown on the concept plan is fully 'sold' by MoDOT staff, so therefore time should be anticipating either preparing pros/cons of multiple options or debating one kind over the other. It is expected that the firm may have to hire another engineering company to perform this analysis and design.
    - For all signals, it is assumed that MoDOT will be the owner and will want the firm to prepare the signal timing, for the contractor to implement as part of construction.
- ITS improvements or modifications to the existing system. It is expected that the firm may have to hire another engineering company to perform this analysis and design.
- Street lights, signage (including highway signage), landscaping, and aesthetic enhancement design.
- Bridge design (no new bridges/structures are proposed, however modifications to existing MoDOT bridges are part of the project). Coordination with specific MoDOT bridge personnel should be anticipated. It is anticipated that the firm obtain the record drawings of the existing bridges, and incorporate those into the final plan set, with the proposed improvements to the bridge incorporated.
- Right of Way plans, plats, legal descriptions. Although most of the ROW is being donated by the developer, additional easements may still be needed. Firm will also be asked to assist with developing deeds to transfer any final City-owned ROW to the State, towards the end of the project.
- Preparation of Final plans, estimates, and specifications, to meet MoDOT standards. Includes preparation of Job Special Provisions to be included with City's boilerplate documents.
    - It is assumed that the firm will prepare typical sections, quantities, plan sheets, profile sheets, provide reference and coordinate points, special sheets, traffic control sheets (including signal timing), phasing plans, ROW sheets (as needed), erosion control sheets, lighting sheets, signal sheets, signing sheets, ITS sheets, pavement marking sheets, culvert section sheets, bridge drawings, and cross sections.
- Cost estimates to be updated at various milestones. Consultant will be expected to provide the bid quantities to MoDOT in a format that is suitable for their system (should MoDOT bid the project).
- Consultant will be asked to discuss the bids with the City, as part of the award of the bid to a contractor.
- Utility coordination and Plans of Adjustment. The consultant is expected to make all submittals and coordinate adjustments with all applicable utility companies.
- Conduct one (1) Open House Public Meeting (with City staff as co-hosts). It is possible this task may not be needed but consultant should anticipate one if MoDOT or other agency insists it is needed.
- Meetings with stakeholders, Council, others. It is likely that there will be routine meetings (potentially monthly) with MoDOT and City staff, and others, to go over status updates. The consultant will be expected to create agendas and meeting minutes, and to attend the

meetings. It should be expected for these to occur through design and at east towards the beginning of construction.

Tasks that are NOT to be performed by the consultant at this time include, but are not limited to:

- Performing a new traffic study (see the excpetion regarding the signal/roundabout intersection from above)
- Perform direct right-of-way negotiation with property owners. The current owner has committed to donating the right-of-way via a record plat to the City which is already underway, so there may only need to be some coordination to ensure the improvements line up with the platted areas.
- Bid services (hosting). It is assumed that MoDOT or the City will actually bid the project.
- Construction inspection services. It is anticipated that City staff will perform construction inspection services. It is anticipated that the construction contractor will perform staking and layout services, after the contract is awarded.

Project Schedule

Notice to Proceed	Late March 2020
Preliminary Engineering	April 2020-July 2020
ROW approval (donated from Developer/Owner so there will not be a need to follow the complete process)	August 2020
Final PSE Preparation	Aug. – Nov. 2020
Final PSE Approval (MoDOT)	Dec. 2020
Utility relocation	July – Dec. 2020
Advertise for Construction	Jan. 2021
Contract approval for Construction	Feb. 2021
Notice to Proceed for Construction	March 2021
Completion *	March 1, 2022 *

* It should be noted that this date is established in the City's Development Agreement with the developer.

Cost Share Application

Highway DD Improvements

City of O'Fallon

Submittal Date
April 26, 2019

MoDOT Partnership Development Application Form

Cost Share Program

SECTION A - Applicant Information

Name of Applicant:

City of O'Fallon, Missouri

Other Names Under Which Applicant Does Business:

Business Address:

100 North Main Street
O'Fallon, MO 63366

Mailing Address (if different from above):

Contact Person Name:

Jeff Schuepfer

Contact Person Title:

Assistant City Engineer

Mailing Address for Contact Person (if different from above):

Telephone:

636-379-5491

Fax:

636-978-4144

E-Mail Address:

jschuepfer@ofallon.mo.us

Applicant Information:

Describe Applicant's organizational structure, history, ownership, and legal structure (e.g., individual, state governmental agency, local governmental agency, corporation, or partnership). Attach an annual financial report, if available.

Established in 1856 and incorporated in 1912, OFallon remained relatively small, but has grown to be the States 7th largest city with over 80,000 residents.

OFallon is a home-rule charter city, utilizing the Mayor-City Council-City Administrator form of government. The Council is comprised of ten council members who represent each of the Citys five wards (two per ward), and a Mayor who is elected at large. The Mayor serves a four-year term and each Council member serves a three-year term. The City Administrator is appointed by the Mayor and approved by the City Council to serve as the chief executive officer of the City.

SECTION B - Project Information

1. Project Name

Assign a short name to the project, for purposes of identification. Also include the MoDOT Job Number, if the project is programmed.

Highway DD Improvements

2. Location

Describe the location of the project, including major intersecting highways and rail routes, cities, towns, metropolitan planning organizations or regional planning commissions. Attach a map as Exhibit I.

Starting at the intersection of Winghaven Blvd and Technology Dr, and extending west along Highway DD. The limits will stop just east of the first creek crossing for a total distance of approximately 0.6 miles. These locations are on the edge of the City of OFallon and unincorporated St. Charles County. This location is part of the East-West Gateway MPO. See the attached exhibit with a location map.

3. Description

Describe the purpose and need for the project, its basic design features and what it will accomplish. Include an assessment of the current condition of all transportations facilities relating to the project.

When the application is submitted, a Conceptual Plan is required. This includes the project's purpose and need stating what conditions will be addressed with the project solution or concept. Article 128 of MoDOT's Engineering Policy Guide (EPG) addresses Conceptual Studies for most projects.

If there is a possibility of a significant environmental impact with the project, then an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required. Article 126 of the EPG defines the requirement of these documents. If the project is within a 3 mile radius of an airport, indicate the name of the airport and name of the city.

These sections from the EPG can be downloaded from the following website: http://epg.modot.org/index.php?title=Main_Page.

Attach as Exhibit II the Conceptual Plan and EA or EIS, as applicable.

See attached description

4. Significance and Need

Describe the extent to which the project is regionally significant. Describe the project's transportation need (including impacts to the state highway system) and public benefits. Describe the project's ability to generate economic benefits, support commerce and create new jobs. Supporting documentation may be attached as Exhibit III.

Projects expanding the state highway system or increasing state maintenance costs must seek pre-approval by MoDOT's Chief Engineer prior to submittal of application.

Highway DD is a major east-west corridor in St. Charles County but it is only two lanes for most of it. The section just south of I-64 carries most of the traffic especially from all of the residential development along the Sommers Road corridor. There is also a newer soccer park complex with a new restaurant and other future commercial developments in this immediate area.

For the City of OFallon, this area along Highway DD, Sommers Road, and areas further west have been the most developing area in the last 5-10 years as well, and new developments continue to come in this area. This is in very close proximity to I-64, where there is good frontage available for sites to develop and where traffic will be higher.

Due to increased traffic in the area and a lack of capacity improvements being performed over the years, the City of OFallon has sought CMAQ funding to convert the three-way intersection of Sommers and Highway DD to a signalized intersection. This project has been funded and will be ready for construction and will be completed in 2019. Additionally, the City of OFallon has also performed other intersection improvements (364 and Sommers, 364 and Hawk Ridge Trail which also happened to be a Cost Share-funded project with us), resulting in successful projects. Our past relationship with MoDOT on these projects is good and the City is equipped to manage this project as well. These projects have benefited the MoDOT system and the federal grant funds have helped reduce the total cost that each party has had to make.

The proposed residential development by Payne Family Homes would add over 650 homes and more traffic in these areas. 100 acres of commercially zoned properties are also being preserved along the I-64 frontage, which ties into the proposed outer road along with a future hotel.

The development from Payne would construct Caledonia Pkwy up to the stub at the northern limits, which would serve as an interim outer road. That connection will bring more traffic to Hwy DD. The future outer road is a separate project and not part of this application.

The new Caledonia development will spill over onto Winghaven Blvd as well, as motorists exiting I-64 will face further delays. The traffic study outlines the overall improvements needed, which this application seeks to address.

These improvements would improve traffic flow for existing and proposed developments, and the quadrant at the southwest of Highway DD and I-64 is a prime location for a large development to prosper. By constructing these improvements, the current traffic congestion is improved while also paving the way for future developments in the area ahead of the demand. The capacity is increased along Route DD with the additional lanes, which will help service the area into the future. Currently Highway DD is only two lanes wide with minimal shoulders so this project should improve safety by improving pavement width.

This is a benefit to MoDOT as this area will continue to develop and improvements will be needed. By cost sharing with the developer, County and City, we can properly plan for this future capacity increase and MoDOT can have the work completed at a cost savings by teaming up with others. Additionally it will allow MoDOT staff to continue to focus on other priorities while the City takes the lead on the management of this project. This project is exactly what the cost share program has been used for in the past as a true beneficial partnership-type project. Additionally, on Caledonia Parkway, MoDOT controls a long ROW both east of and west of DD. This will benefit MoDOT by getting rid of that and turning it over to the City, of which there are ongoing problems with debris and trash being dumped on the west side. This is a significant amount of right-of-way and pavement that would be removed from the State system.

5. Private Participation

Describe the extent to which the project fosters innovative public-private partnerships, if any, and attracts debt and/or equity investment from private capital. Identify private partners and provide evidence of commitments, joint venture agreements, lease or other supporting documents for the public-private partnerships as Exhibit IV. Also, describe the extent to which the project's debt repayment depends on user charges.

The City will be partnering with the private developer, Payne Family Homes, and St. Charles County, for this project. The City will be entering into an agreement addressing the private partnership terms.

Because this is a state road, the City is looking for MoDOT to also help to improve the MoDOT system, which has been seeing increasing traffic over the years.

6. Timeline

Provide the estimated project schedule from beginning to completion. Show all major aspects of the project including preliminary engineering, right of way acquisition, utilities and construction. Supporting documentation may be attached as Exhibit V.

As discussed earlier in the application, the City would be taking the lead on the Engineering and Construction of the road improvements. As such, the City will be following the LPA policies for each of the processes.

Cost Share application due Apr 2019
Cost Share Committee meeting Jun 2019
Cost Share agreement approvals Jul-Aug 2019
RFP for Preliminary Engineering Oct-Nov 2019
Contract Approval for Preliminary Engineering Nov-Dec 2019
Notice to Proceed for Preliminary Engineering Jan 2020
Preliminary Engineering Jan 2020-Jan 2021
ROW approval (donated from Developer/Owner so there will not be a need to follow the complete process) Q3 2020
Final PSE Approval (MoDOT) Jan-Mar 2021
Utility relocation Jan-Jun 2021
Advertise for Construction Mar-Apr 2021
Contract approval for Construction Apr-Jun 2021
Notice to Proceed for Construction Q3 2021
Completion Q4 2022

If the opportunity was made available, the City would like to accelerate this schedule.

Project Information

Who is designing the project?	City
Who is letting the project?	City
What is the estimated letting date?	Q2 2021
Current Average Daily Traffic (ADT)	See Exhibit 4, 2017
Future ADT and Year	See Exhibit 4, 2020
Length of project	0.6 miles
Is ROW acquisition required? If yes, who will be acquiring the ROW?	The developer who will be purchasing the property to develop will dedicate the ROW to MoDOT as is needed for the project. This is shown as a soft match. The value of this is 492,900 and will be listed as a credit on the City's contribution. The developer's commitment to donate the ROW is attached to this application.
Extent of preliminary work completed	See attached concept plan and estimates that have been prepared for this project by the developer.

SECTION C - Finance Plan

1. Estimated Project Cost

A. Define what activities are included in the total project costs (e.g., preliminary engineering, environmental assessment, right of way (ROW) acquisition, ROW acquisition incidentals, utilities, construction contract and/or construction engineering) and describe any costs or activities that may not be eligible.

An estimate is attached to this application for a detailed breakdown, known as Exhibit 3. All costs are preliminary. It should be noted that areas for right-of-way acquisitions have been estimated based on conceptual design. Construction cost estimates are based on estimated quantities. Utility relocations and associated costs have been assumed to be approximately 7.5% of the construction costs. All of the proposed improvements are within existing State right-of-way (defined as on-system). Further investigation will be required to determine the impacts to the utilities and related project costs. If underruns in engineering, right-of-way, or utilities are found, then the un-utilized funds will be rolled into construction.

Because the MoDOT cost-share application will typically only fund work performed on MoDOTs system, this estimate is based on the complete project cost because all affected roads are on MoDOT's system. There are some areas identified on the concept plans and the cost-estimate that are considered off-system, which are not included as part of the scope of this application. The concept plan highlights the limits of this application with the improvements shaded in gray. The side streets not within the project limits will be funded/built separately. Those costs will not be seeking cost-share funds under this application. The Highway DD project is a standalone project, not being contingent upon the adjacent roads.

Preliminary Engineering fee estimates are based on the assumption that an Environmental Assessment will be required as part of the NEPA process. Included in the engineering fee estimate are roadway (and all associated items), traffic, surveying, geotechnical, and environmental (NEPA) services. A traffic impact study has been provided, which has identified the required road improvements.

Right-of-way will be donated by the developer as they own the ground adjacent to Highway DD. A letter from the owner stating such is provided. This donation by the developer does have a value, and as such it is being listed within the total cost of the project. Please note that we are not seeking any cost-share funds to cover this credit, which is being listed in the developer's match.

Construction Engineering including inspection and testing will be performed by a consultant that the City will hire. This is included in the estimate.

The improvements as shown on the project map and cost estimate will provide strong improvements to Highway DD in this area, especially right off the Interstate.

B. For all eligible costs, provide a breakdown for the following items in the Project Estimates and Funding chart, if applicable: feasibility studies, preliminary engineering, environmental assessment, right of way (ROW) acquisition, ROW acquisition incidentals, utilities, construction contract, and construction engineering. Include other cost categories as necessary. All cost estimates should be expressed on a cash (fiscal year-of-expenditure July to June) basis and should include a narrative describing assumptions used to arrive at such estimates. All future costs should be adjusted for inflation to year-of-expenditure.

1. The concept study referenced throughout this application is the basis of this application, and is work that has already occurred and not seeking reimbursement. This work has been performed by the developer. A traffic impact study has been provided, which has identified the required road improvements.
2. PE is included in this application
3. CE is included in this application.

It is anticipated to start on the preliminary engineering in State Fiscal Year (SFY) 2020, which would include the environmental assessment. Once complete, the PSE would be submitted to MoDOT for review. ROW dedication would occur as soon as feasible from the developer. Also in SFY 2020, part of the utility relocation could commence. SFY 2021 would finish utility relocation and begin and complete construction of the project.

C. For all eligible costs provided in B., include who will be providing and funding each item on the Project Estimate and Funding Chart. Funding sources may include federal funds, state grants, local grants, private investment (equity or debt), market value of right of way donations, bond proceeds (general obligation, revenue and others), other borrowing (specify), investment income, revenues, federal credit assistance proceeds or any other contributions. Federal funds (including earmarks) provided by the applicant as part of their portion of the project costs must, if applicable, also provide the cash for matching the federal funds. Applicant’s funds are deposited with MoDOT as specified in the project agreement. For each funding source, describe the status (e.g., requested, committed or received).

The funding chart below breaks down the responsibilities of funding. Federal funds are not being sought for the Highway DD project. The private funds are coming from multiple sources. County Road Board funds have been applied for and the results should be known by the June Cost Share committee meeting.

Because this project is being managed by the City, there will be some MoDOT oversight for engineering, ROW and construction. Costs have been set aside for these expenses. If you reference the estimate under soft costs, these three items are broken out.
-PE oversight, $10,000, is lumped in with the preliminary engineering breakdown in the funding chart below.
-ROW incidentals, $10,000, is lumped in with the ROW incidentals breakdown in the funding chart below.
-Construction oversight, $10,000, is lumped in with the construction engineering breakdown in the funding chart below.

Project Estimates and Funding Chart

	Current Estimate	Services Provided By	Funded By	Funding Source
Feasibility Studies	n/a	Developer	Developer	Developer
Preliminary Engineering	271,291.94	City	All	All
Environmental Assessment	lumped in with Preliminary Engineering if needed	City	All	All
ROW Acquisition	492,900	Developer to donate to MoDOT. This is listed as a credit.	Developer to donate	Donation of owned property by Developer
ROW Acquisition Incidentals	10,000	tbd	All	All
Utilities	135,850	City	All	All
Construction Contract	3,143,342.39	City	All	All
Construction Engineering	275,828.44	City/Consultant	All	All
Total	4,329,212.76 (includes ROW credit)			

Summary of Financial Responsibilities

MoDOT District Funds	Up to district
Cost Share Funds	1,918,156.38
Local entity	1,918,156.38 (TOTAL). 303,068.71 (O'Fallon) + 1,219,947.46 (County) + 888,040.21 (developer; includes ROW credit)
Other	N/A
Total	4,329,212.76 (includes ROW credit)
Requesting MTFC loan?	N/A
Year(s) Cost Share/Economic Funds are requested	SFY 2020 - SFY 2021
If local entity's match includes STP or CMAQ funds, what year are these funds available?	N/A

Applicants are responsible for any cost overruns.

SECTION D - Applicant Certification

The appropriate District Office may assist in completing Section D

1. **Federal Requirements.** This project complies with, and/or will comply with, the requirements of (check all that apply):

   ☑ Title 23 of the U.S. Code
   ☑ Chapter 53 of Title 49 of the U.S. Code
   ☑ Section 5333(a) of Title 49 of the U.S. Code

2. **National Environmental Policy Act.** The project complies with, and/or will comply with, all provisions of the National Environmental Policy Act of 1969 (42 W.S.C. 4321 et seq.).

   Yes ◉ No ○
   If no, please explain below.

   The project (check all that apply):

Yes ○	No ◉	Received a Categorical Exclusion.
Yes ○	No ◉	Received a Finding of No Significant Impact (FONSI)
Yes ○	No ◉	Circulated a Draft Environmental Impact Statement.
Yes ○	No ◉	Circulated a Final Environmental Impact Statement.
Yes ○	No ◉	Received its Record of Decision. (If no, provide on an attached sheet the estimated date for receipt of the Record of Decision.)

3. **Uniform Relocation.** This project complies with, and/or will comply with, all provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1070 (42 U.S.C. 4601 et seq.)

   Yes ◉ No ○
   If no, please explain below.

4. **Civil Rights.** This project complies with, and/or will comply with, all provisions of Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.).

   Yes ◉ No ○
   If no, please explain below.

5. **Buy America.** This project complies with, and/or will comply with, all provisions of Title 23 of the U.S. Code, Section 313, Buy America.

   Yes ◉ No ○
   If no, please explain below.

6. **Manual of Uniform Traffic Control.** This project complies with, and/or will comply with, all provisions of 23 Code of Federal Regulations, Part 655, Subpart F, Manual of Uniform Traffic Control.

   Yes ◉ No ○
   If no, please explain below.

7. **Other Requirements as Applicable.** This project complies with, and/or will comply with, all other applicable provisions of federal law.

   Yes ◉ No ○

   If no, please explain below.

8. **Lobbying.** Section 1352 of Title 31, United States Code, provides that none of the funds appropriated by any Act of Congress may be expended by a recipient of a contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, or an employee of a Member of Congress in connection with the award or making of a federal contract, grant, loan, or cooperative agreement or the modification thereof. MoDOT interprets this provision to include the use of appropriated funds to influence or attempt to influence the funding of a transportation project supported or partially supported by federal funds.

SECTION E - Submission Acknowledgment

As the Applicant or as an authorized representative of the Applicant, I hereby submit this MoDOT Partnership Development Application and represent that the statements contained herein are true and correct to the best of my knowledge. We believe that the assumptions underlying the Financial Plan are reasonable and appropriate. Further, we have made available all significant information that we believe is relevant to the Financial Plan and, to the best of our knowledge and belief, the documents and records supporting the assumptions are appropriate. I also understand that the acceptance and consideration of this application does not constitute approval by the Missouri Highways and Transportation Commission.

Project Name: Highway DD Improvements

* A copy of the signature page is required for the completion of this application. Please print it, sign it and attach below. A signature must be provided by each party of the application.

Signature	**Typed or Printed Name**
Director of Public Works	4/25/2019
Title	**Date**

**Application requires a letter of support from the MoDOT District Engineer and the Metropolitan Planning Organization or Regional Planning Commission.*

Submit application by clicking on "Submit to the Partnership Group" button below or to: Financial Services Division, Missouri Department of Transportation, P.O. Box 270, Jefferson City, MO 65102 (Phone 573-526-8106)

3. Description

Highway DD is currently a two-lane road and has experienced an increase of traffic over the years due to increased residential development south of I-64. Today there is only one thru lane through the ramp intersection on the west side of the I-64 interchange. There is a large residential and future commercial development being considered adjacent to this area along Highway DD. In addition, there are other recent developments further west that have either been built or anticipated to be built that will bring additional traffic to Highway DD. Highway DD has not been improved as far as capacity improvements in this immediate area since the early 2000's even though this area has experienced significant growth since then. For example, most of the area just west of I-64 off Highway DD was traditionally larger lot county residential homes with low density. By 2018, there were over 2,500 houses built that are along Highway DD since the early 2000s. Also, there is news of a new Busch microbrewery/petting zoo to be built south of Highway DD, which will add more traffic to this stretch of Highway DD.

MoDOT StL District has mentioned upcoming maintenance project along Highway DD (mill/fill and guardrail) in the upcoming 12 months however this is not addressing capacity. Some of this maintenance project occurs within the limits of the application. There is a definite advantage to saving those funds and applying them towards this application, which will address capacity and the surface.

The purpose of the application is to fund road improvements to Highway DD to improve traffic flow in this area. This will account for the 650 proposed residential homes, the thousands of other residential homes just west of this area, the newer high school and elementary school off Sommers Rd, and newer regional City park (O'Day) and the County Park (Broemmelsiek Park) that have been built (and some still under construction) in the last 15 years. Progress and growth in this area has been limited due to lack of sewer service, however that is changing. With this project, there is an opportunity to get ahead of anticipated growth.

The general approach is as follows:

- Widen DD to a four-six lane section, from I-64 south to Dalriada Blvd, and then reduce back down to two lanes past the roundabout (includes left turn lanes at the proposed intersections).
- Caledonia Drive will be improved to a signalized intersection.
- Modify the intersection of the I-64 ramp, on the south side of I-64, to allow for two lanes passing through the intersection.
- Modify Winghaven Blvd as it approaches the intersection of the I-64 ramp, on the north side of I-64, to allow for three lanes passing through the intersection. This will not affect the 9/11 memorial however will encroach closer to it.
- Add another lane for a dual left turn at the I-64 westbound exit.
- Add another lane for a dual left turn at the I-64 eastbound exit.
- Restripe the eastbound lane at Winghaven Blvd and Technology Drive, to allow for a dual left turn onto Technology Drive. An additional signal head on the existing mast arm will also be needed. The pavement is already there however it is striped off.
- Construct a new single lane roundabout approximately 700 feet south of Caledonia Drive. If a traffic signal would be more appropriate, that could be utilized as well. MoDOT staff was still undecided on which device would be more appropriate. This roundabout will be built as a two lane roundabout but only one lane will be operational on opening day. Future development will trigger the expansion.
- Construct a trail along Highway DD along the project limits, within MoDOT right-of-way.

- The new intersections would be built with for pedestrian access.

With all of the improvements, both MoDOT and the City will be picking up additional maintenance of a new signal and roundabout, and new roadways.

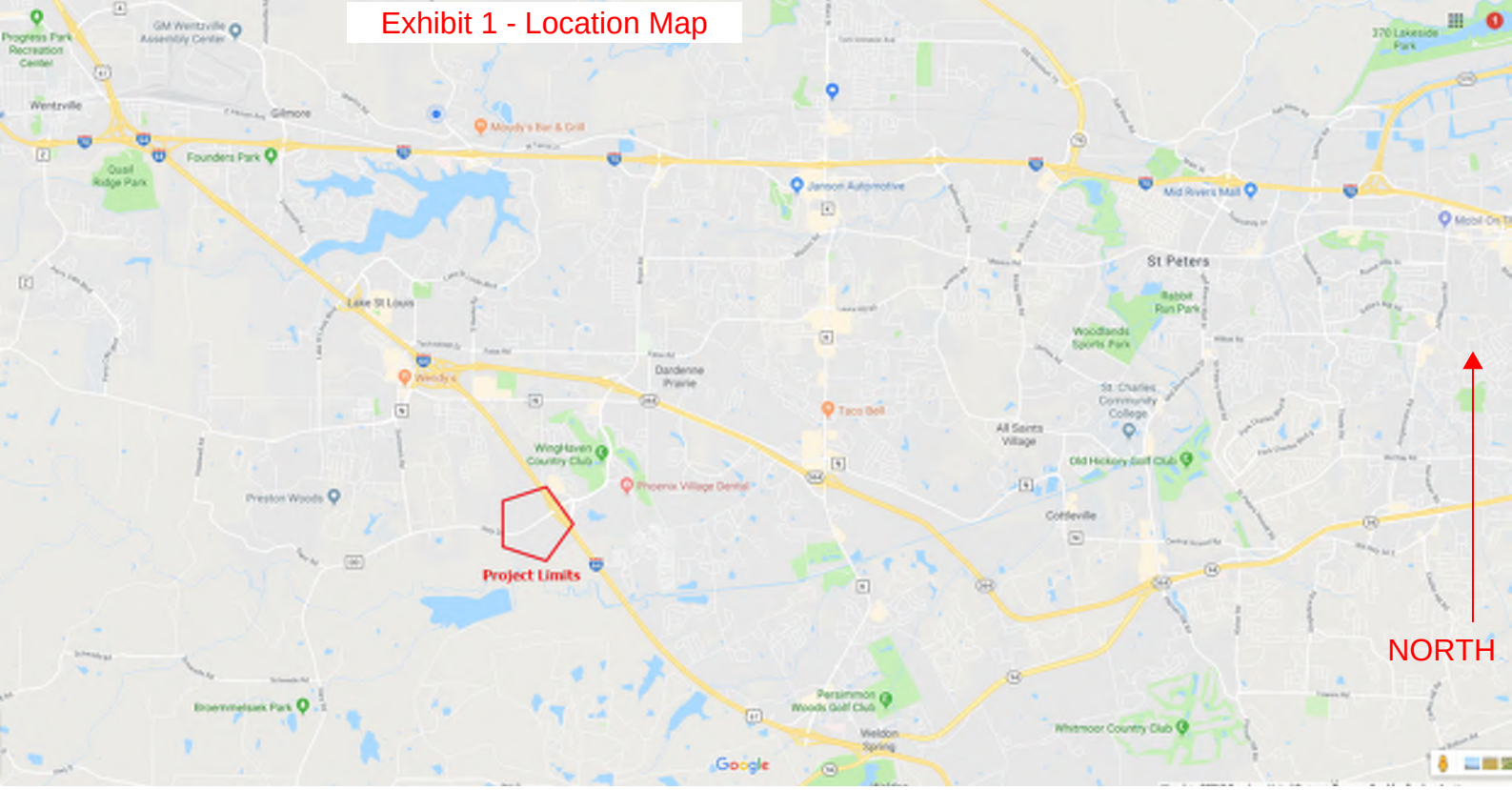
- Currently, Caledonia Parkway (stub street north of Hwy DD) and the section leading to the theater/soccer park is owned by MoDOT. As part of this project, the City would take over the ownership and maintenance of these roads.
- A calculation showing the increase in lane miles is attached. After adding in the new roadways and removing the old roadways, there is an increase to MoDOT in about 1.6 miles, and the City will take in about 1.2 miles.
- Although not yet discussed, it is a possibility that the roundabout will have landscaping in it requiring a growing together agreement in the future.

It is not anticipated that an EA is required on this project and that it should receive a CE2 from MoDOT. The City will seek MoDOT review and approval for the project as it impacts their right-of-way.

Concept plans are attached as an exhibit for reference, which is the basis for this application.

Exhibits - Location Map

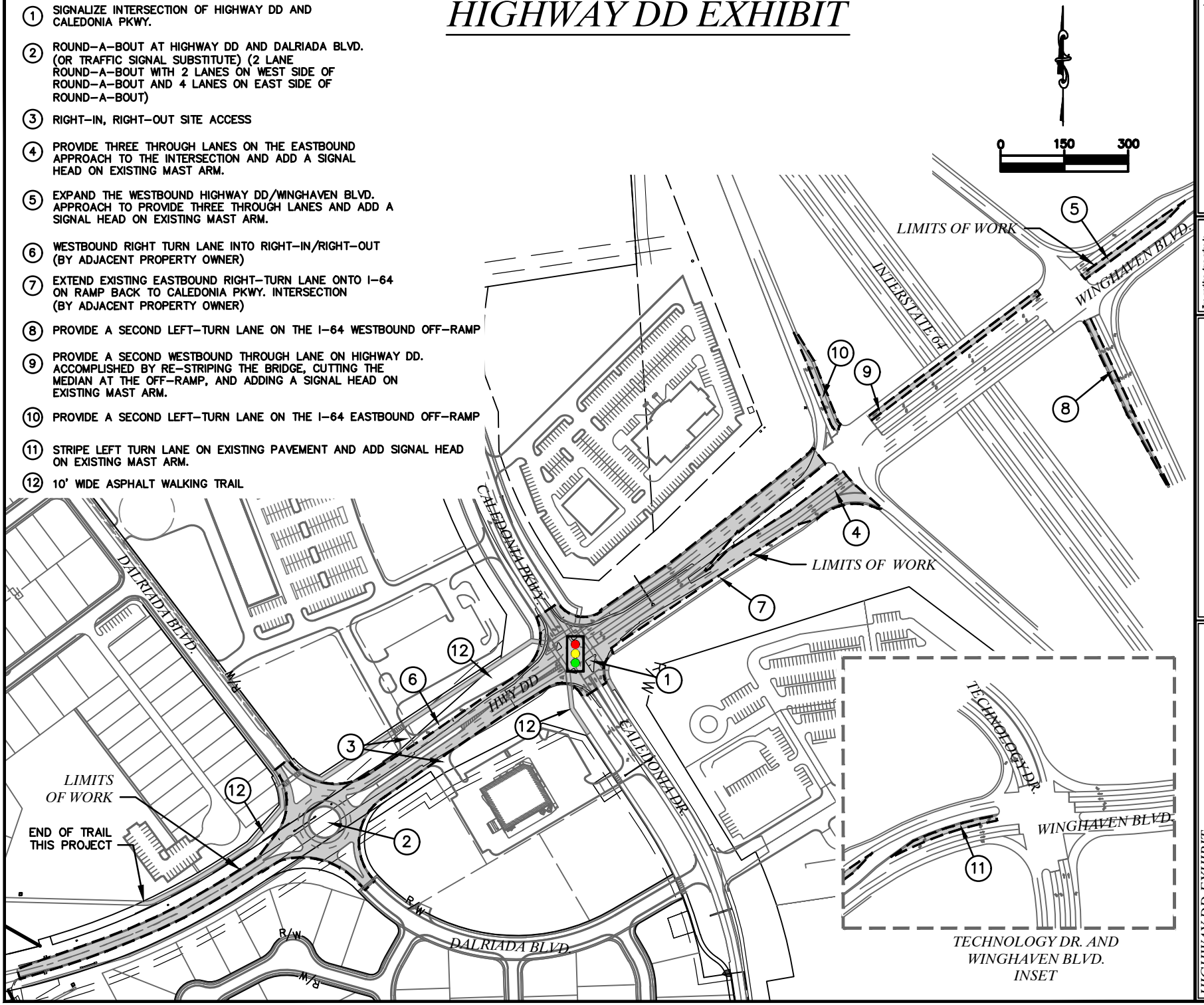
Exhibit 1 - Location Map



Exhibits - Concept Plan

HIGHWAY DD EXHIBIT

1. SIGNALIZE INTERSECTION OF HIGHWAY DD AND CALEDONIA PKWY.
2. ROUND-A-BOUT AT HIGHWAY DD AND DALRIADA BLVD. (OR TRAFFIC SIGNAL SUBSTITUTE) (2 LANE ROUND-A-BOUT WITH 2 LANES ON WEST SIDE OF ROUND-A-BOUT AND 4 LANES ON EAST SIDE OF ROUND-A-BOUT)
3. RIGHT-IN, RIGHT-OUT SITE ACCESS
4. PROVIDE THREE THROUGH LANES ON THE EASTBOUND APPROACH TO THE INTERSECTION AND ADD A SIGNAL HEAD ON EXISTING MAST ARM.
5. EXPAND THE WESTBOUND HIGHWAY DD/WINGHAVEN BLVD. APPROACH TO PROVIDE THREE THROUGH LANES AND ADD A SIGNAL HEAD ON EXISTING MAST ARM.
6. WESTBOUND RIGHT TURN LANE INTO RIGHT-IN/RIGHT-OUT (BY ADJACENT PROPERTY OWNER)
7. EXTEND EXISTING EASTBOUND RIGHT-TURN LANE ONTO I-64 ON RAMP BACK TO CALEDONIA PKWY. INTERSECTION (BY ADJACENT PROPERTY OWNER)
8. PROVIDE A SECOND LEFT-TURN LANE ON THE I-64 WESTBOUND OFF-RAMP
9. PROVIDE A SECOND WESTBOUND THROUGH LANE ON HIGHWAY DD. ACCOMPLISHED BY RE-STRIPING THE BRIDGE, CUTTING THE MEDIAN AT THE OFF-RAMP, AND ADDING A SIGNAL HEAD ON EXISTING MAST ARM.
10. PROVIDE A SECOND LEFT-TURN LANE ON THE I-64 EASTBOUND OFF-RAMP
11. STRIPE LEFT TURN LANE ON EXISTING PAVEMENT AND ADD SIGNAL HEAD ON EXISTING MAST ARM.
12. 10' WIDE ASPHALT WALKING TRAIL



OCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@ochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning

Two working days prior to the start of any excavation call 1-800-DIG-RITE for utility location information.

All OSHA rules & regulations established for the type of construction involved in these plans shall be strictly followed (ie. Trenching, Blasting, etc.)

THE STREETS OF CALEDONIA
O'FALLON, MISSOURI

HIGHWAY DD EXHIBIT	
REVISION:	
DATE:	
DWN. BY:	TES
APP'D. BY:	ERR
DATE:	APR. 9, 2019
SCALE:	1"=300'
PROJ. NO:	17-6821
DWG. NO:	EX. 1

Drawing name: F:\17-6821 - 260 Acre Tract along Hwy 40, O'Fallon, MO\AutoCad Drawings\6821 - Exhibits\Highway DD Exhibit.dwg Tab: 8.5X11 Plotted on: Apr 09, 2019 - 10:35am Plotted by: tschowe

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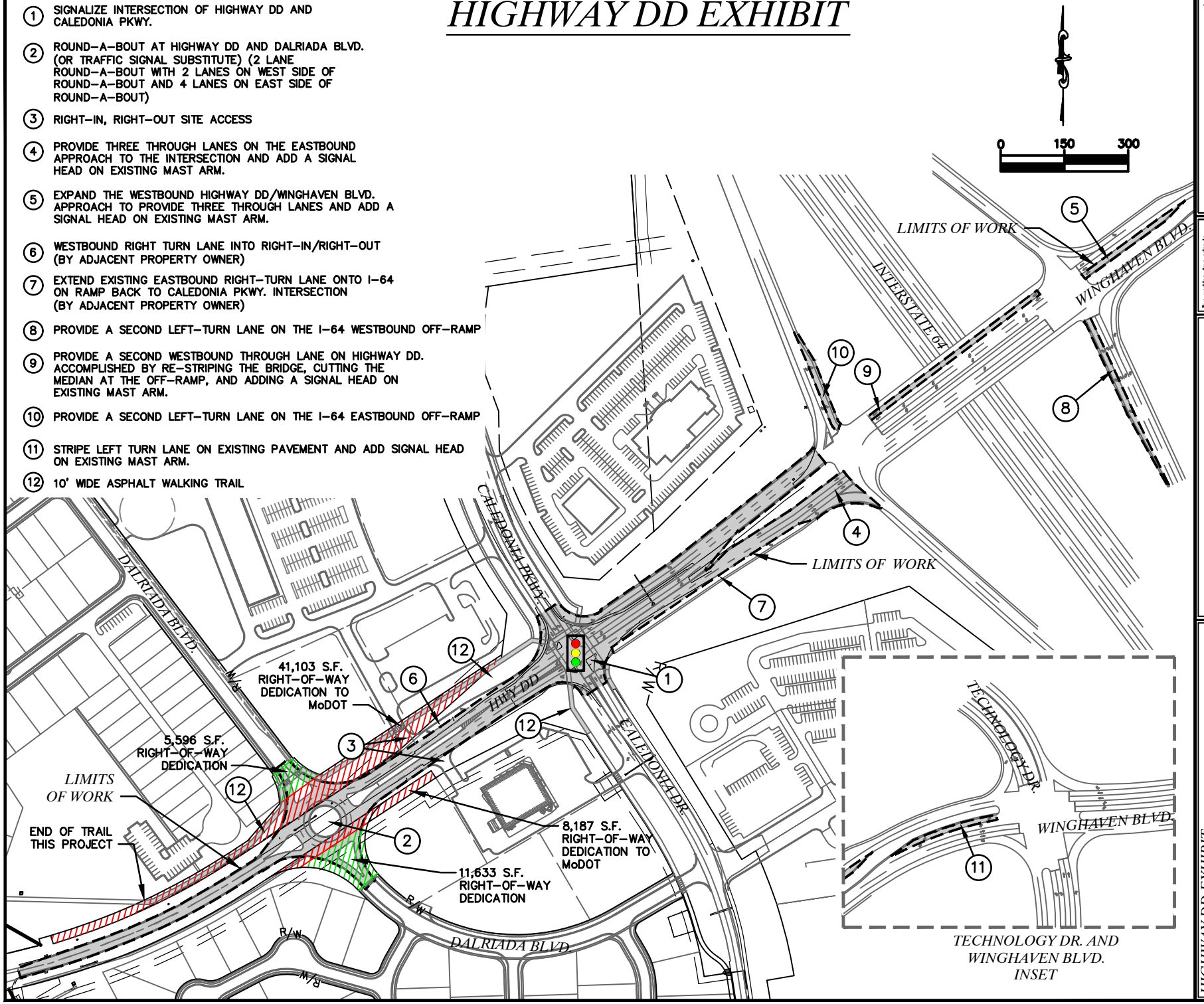

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O'FALLON, MISSOURI

DRN. BY:	TES
APP'D. BY:	ERR
DATE:	APR. 9, 2019
SCALE:	1"=300'
PROJ. NO.:	17-6821
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HIGHWAY DD EXHIBIT

Exhibits - Cost Estimate

COCHRAN

Architecture • Civil Engineering • Land Surveying • Site Development • Geotechnical Engineering • Inspection & Materials Testing

PRELIMINARY DD Road PUBLIC IMPROVEMENTS COST ESTIMATE (ROUND-A-BOUT AT DALRIADA)

Interstate 64 and Highway DD

O'Fallon, MO

Project No. 17-6821

April 25, 2019

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
HIGHWAY DD (I-64 ramps to Dalriada) Area #1				
Clearing/Grubbing	1.16	AC	$3,500.00	$4,060.00
Erosion control	2,088	LF	$15.00	$31,320.00
Earthwork	4,930	CY	$10.00	$49,300.00
Demolition	19,304	SF	$1.75	$33,782.00
Concrete lane widening (8-inch concrete w/ 4-inch rock base)	8,437	SY	$69.00	$582,153.00
Concrete curb and gutter	1,303	LF	$22.00	$28,666.00
Asphalt lane widening (12-inch asphalt w/ 12-inch rock base)	0	SY	$68.00	$0.00
2-inch asphalt overlay of existing asphalt pavement	0	SY	$10.50	$0.00
Asphalt shoulder (4-inch asphalt w/ 8-inch rock base)	743	SY	$27.00	$20,061.00
6-inch concrete median/islands	3,993	SF	$8.00	$31,944.00
Colored Concrete in Round-a-bout	0	SY	$95.00	$0.00
Round-a-bout at Dalriada Blvd. (Phasing/signage)	0	EA	$150,000.00	$0.00
New Traffic Signal at Highway DD and Caledonia Parkway	1	EA	$348,000.00	$348,000.00
10' Wide Asphalt Trail	646	SY	$58.00	$37,468.00
5' Wide Concrete Sidewalk	427	SF	$7.00	$2,989.00
Street lights	6	EA	$11,600.00	$69,600.00
Storm sewer improvements	870	LF	$81.20	$70,644.00
Utility relocations	1	LS	$84,100.00	$84,100.00
Landscaping	870	LF	$29.00	$25,230.00
Traffic control	1	LS	$20,184.00	$20,184.00
Mobilization/General Conditions	1	LS	$100,920.00	$100,920.00
SITEWORK TOTAL				**$1,540,421.00**
HIGHWAY DD (Intersection with Dalriada) Area #2				
Clearing/Grubbing	0.30	AC	$3,500.00	$1,050.00
Erosion control	540	LF	$15.00	$8,100.00
Earthwork	1,275	CY	$10.00	$12,750.00
Demolition	10,233	SF	$1.75	$17,907.75
Concrete lane widening (8-inch concrete w/ 4-inch rock base)	4,018	SY	$69.00	$277,242.00
Concrete curb and gutter	1,183	LF	$22.00	$26,026.00
Asphalt lane widening (12-inch asphalt w/ 12-inch rock base)	0	SY	$68.00	$0.00
2-inch asphalt overlay of existing asphalt pavement	0	SY	$10.50	$0.00
Asphalt shoulder (4-inch asphalt w/ 8-inch rock base)	0	SY	$27.00	$0.00
6-inch concrete median	8,130	SF	$8.00	$65,040.00
Colored Concrete in Round-a-bout	369	SY	$95.00	$35,055.00
Round-a-bout at Dalriada Blvd. (Phasing/signage/bypass)	1	EA	$150,000.00	$150,000.00
New Traffic Signal at Highway DD and Dalriada	0	EA	$205,000.00	$0.00
10' Wide Asphalt Trail	393	SY	$58.00	$22,794.00
5' Wide Concrete Sidewalk	588	SF	$7.00	$4,116.00
Street lights	1	EA	$11,600.00	$11,600.00
Storm sewer improvements	225	LF	$81.20	$18,270.00
Utility relocations	1	LS	$21,750.00	$21,750.00
Landscaping	225	LF	$29.00	$6,525.00

Traffic control	1	LS	$5,220.00	$5,220.00
Mobilization/General Conditions	1	LS	$26,100.00	$26,100.00
SITEWORK TOTAL				**$709,545.75**

HIGHWAY DD (Dalriada to O'Day Creek) Area #3				
2-inch asphalt overlay of existing asphalt pavement	2,100	SY	$10.50	$22,050.00
10' Wide Asphalt Trail	773	SY	$58.00	$44,834.00
5' Wide Concrete Sidewalk	2,534	SF	$7.00	$17,738.00
Traffic control	1	LS	$9,396.00	$9,396.00
Mobilization/General Conditions	1	LS	$15,000.00	$15,000.00
SITEWORK TOTAL				**$109,018.00**

Winghaven Boulevard Westbound Through Lane Addition (Item No. 5)				
Erosion control	300	LF	$15.00	$4,500.00
Earthwork	500	CY	$10.00	$5,000.00
Demolition	4,500	SF	$1.75	$7,875.00
Concrete lane widening (8-inch concrete w/ 4-inch rock base)	400	SY	$69.00	$27,600.00
Concrete curb and gutter	300	LF	$22.00	$6,600.00
Vehicle detector loop in new pavement	1	EA	$9,000.00	$9,000.00
Signal addition on existing mast arm	1	EA	$8,500.00	$8,500.00
Utility relocations	1	LS	$10,000.00	$10,000.00
Relocate existing storm sewer curb inlet	2	EA	$9,500.00	$19,000.00
Landscaping	300	LF	$29.00	$8,700.00
Traffic control	1	LS	$20,000.00	$20,000.00
Mobilization/General Conditions	1	LS	$15,000.00	$15,000.00
SITEWORK TOTAL				**$141,775.00**

I-64 Westbound Off Ramp (Left Turn Lane Addition) (Item No. 8)				
Clearing/Grubbing	1	AC	$3,500.00	$3,500.00
Erosion control	400	LF	$15.00	$6,000.00
Earthwork	1,500	CY	$10.00	$15,000.00
Demolition	1,890	SF	$1.75	$3,307.50
Concrete lane widening (8-inch concrete w/ 4-inch rock base)	445	SY	$69.00	$30,705.00
Concrete shoulder (6-inch concrete w/ 4-inch rock base)	200	SY	$56.00	$11,200.00
Street lights	1	EA	$11,600.00	$11,600.00
Signal mast arm replacement	1	EA	$56,000.00	$56,000.00
Utility relocations	1	LS	$10,000.00	$10,000.00
Landscaping	400	LF	$29.00	$11,600.00
Traffic control	1	LS	$15,000.00	$15,000.00
Mobilization/General Conditions	1	LS	$20,000.00	$20,000.00
SITEWORK TOTAL				**$193,912.50**

Winghaven Boulevard/Highway DD Westbound Through Lane Addition at I-64 Eastbound Off-Ramp (Item No. 9)				
Restriping	1,200	LF	$10.00	$12,000.00
Demolition of concrete median	1	LS	$5,000.00	$5,000.00
Vehicle detector loop in existing pavement	1	EA	$9,000.00	$9,000.00
Signal addition on existing mast arm	1	EA	$8,500.00	$8,500.00
Traffic control	1	LS	$5,000.00	$5,000.00
Mobilization/General Conditions	1	LS	$5,000.00	$5,000.00
SITEWORK TOTAL				**$44,500.00**

I-64 Eastbound Off Ramp Left Turn Lane Addition (Item No. 10)				
Clearing/Grubbing	1	AC	$3,500.00	$3,500.00
Erosion control	250	LF	$15.00	$3,750.00
Earthwork	1,250	CY	$10.00	$12,500.00
Demolition	2,000	SF	$1.75	$3,500.00
Concrete lane widening (8-inch concrete w/ 4-inch rock base)	333	SY	$69.00	$22,977.00
Concrete shoulder (6-inch concrete w/ 4-inch rock base)	200	SY	$56.00	$11,200.00
Street lights	1	EA	$11,600.00	$11,600.00

Guard rail	350	LF	$35.00	$12,250.00	
Signal mast arm replacement	1	EA	$56,000.00	$56,000.00	
Utility relocations	1	LS	$10,000.00	$10,000.00	
Landscaping	300	LF	$29.00	$8,700.00	
Traffic control	1	LS	$10,000.00	$10,000.00	
Mobilization/General Conditions	1	LS	$15,000.00	$15,000.00	
SITEWORK TOTAL				**$180,977.00**	
Eastbound Winghaven Boulevard at Technology Drive (Second Left Turn Lane Addition) (Item No. 11)					
Restriping	600	LF	$10.00	$6,000.00	
Vehicle detector loop in existing pavement	1	EA	$9,000.00	$9,000.00	
Signal addition on existing mast arm	1	EA	$8,500.00	$8,500.00	
Traffic control	1	LS	$5,000.00	$5,000.00	
Mobilization/General Conditions	1	LS	$5,000.00	$5,000.00	
SITEWORK TOTAL				**$33,500.00**	
SITEWORK GRAND TOTAL				**$2,953,649.25**	
SOFT COSTS					
Geotechnical Investigation	1	LS	$25,000.00	$25,000.00	
Engineering/Surveying	1	LS	8.0%	$236,291.94	
Construction Stakeout	1	LS	1.0%	$29,536.49	
Construction Testing & Inspection	1	LS	2.0%	$59,072.99	
Construction Management - City	1	LS	3.0%	$88,609.48	
Right of Way excpected donation - around roundabout, widen 20' DD est	**49,290**	**SF**	**$10.00**	**$492,900.00**	**expected donation**
MoDOT P.E.	1	LS	$10,000.00	$10,000.00	
MoDOT Construction Oversight	1	LS	$10,000.00	$10,000.00	
MoDOT Right-of-Way Incidentals	1	LS	$10,000.00	$10,000.00	
Sureties, Inspection Fees, Applications, Legal & Insurance			3.0%	$88,609.48	
SOFT COST TOTAL (includes ROW)				**$1,050,020.37**	
GRAND TOTAL (2019 CONSTRUCTION YEAR), less ROW				**$3,510,769.62**	
GRAND TOTAL (2020 CONSTRUCTION YEAR)	1	LS	3.0%	**$3,616,092.71**	
GRAND TOTAL (2021 CONSTRUCTION YEAR)	1	LS	3.0%	**$3,724,575.49**	
GRAND TOTAL (2022 CONSTRUCTION YEAR)	1	LS	3.0%	**$3,836,312.76**	
Missouri Department of Transportation			**50.00%**	**$1,918,156.38**	
St Charles Road Board			**31.80%**	**$1,219,947.46**	
City of O'Fallon			**7.90%**	**$303,068.71**	
Payne Family Homes, LLC			**10.30%**	**$395,140.21**	
			100.00%	$3,836,312.76	

Cost estimate does not include:

Solid rock excavation

Soft costs including city impact fees, water tap fees, sewer tap fees, legal fees, broker fees or management fees

Substitute roundabout for second signal, if necessary.

Exhibits - Lane Mileage Calculation

Lane Mile Calculation

Section	# of Lanes	Lengths Feet *	Mileage **	
I-64 WB exit ramp	1	340	0.064	left turn
Winghaven Blvd WB	1	259	0.049	increase from 2 to 3 lanes at I-64 ramp
I-64 Bridge West Bound lane	1	496	0.094	restriping
I-64 EB exit ramp	1	211	0.040	left turn
Winghaven Blvd EB @ Technology	1	218	0.041	restriping
Hwy DD (I-64 ramp and Caledonia Pkwy)	5	728	0.689	
WB Hwy DD (I-64 ramp and Caledonia Pkwy)	2	409	0.155	dual left turn lanes onto Caledonia Dr
EB Hwy DD (I-64 ramp and Caledonia Pkwy)	2	344	0.130	increase from 2 to 3 lanes at I-64 ramp
EB Hwy DD (I-64 ramp and Caledonia Pkwy)	1	170	0.032	I-64 EB right turn bay
SB intersection side street tapers	5	77	0.073	caledonia pkwy
NB intersection side street tapers	5	62	0.059	caledonia dr
Hwy DD (Caledonia Pkwy and Dalriada)	4	644	0.488	
EB Hwy DD (Caledonia Pkwy and Dalriada)	1	275	0.052	left turn lane onto Caledonia Pkwy
Roundabout (dia 124')	2	389.56	0.148	diameter of the dashed line, for both lanes.
SB roundabout side street tapers	2	108	0.041	dalriada
NB roundabout side street tapers	2	123	0.047	dalriada
Hwy DD (West of Dalriada)	2	732	0.277	
TOTAL (NEW PROJECT)			2.479	
Existing Highway DD	2	2280	0.864	existing two lane road already maintained by MoDOT.
MoDOT Net Increase			1.616	Total Miles MoDOT to take on

Existing Caledonia Pkwy	2	851	0.322	north side
Existing Caledonia Dr	2	2100	0.795	south/theater side
Existing Caledonia Dr	1	581	0.110	south/theater side; increase from 2 to 3 lanes at Hwy DD
TOTAL (EXISTING)			1.228	Total Miles City to take on

* Feet measurement is for one lane.

** Mileage calculation is the product of # lanes and Feet

CALEDONIA PARKWAY EXHIBIT

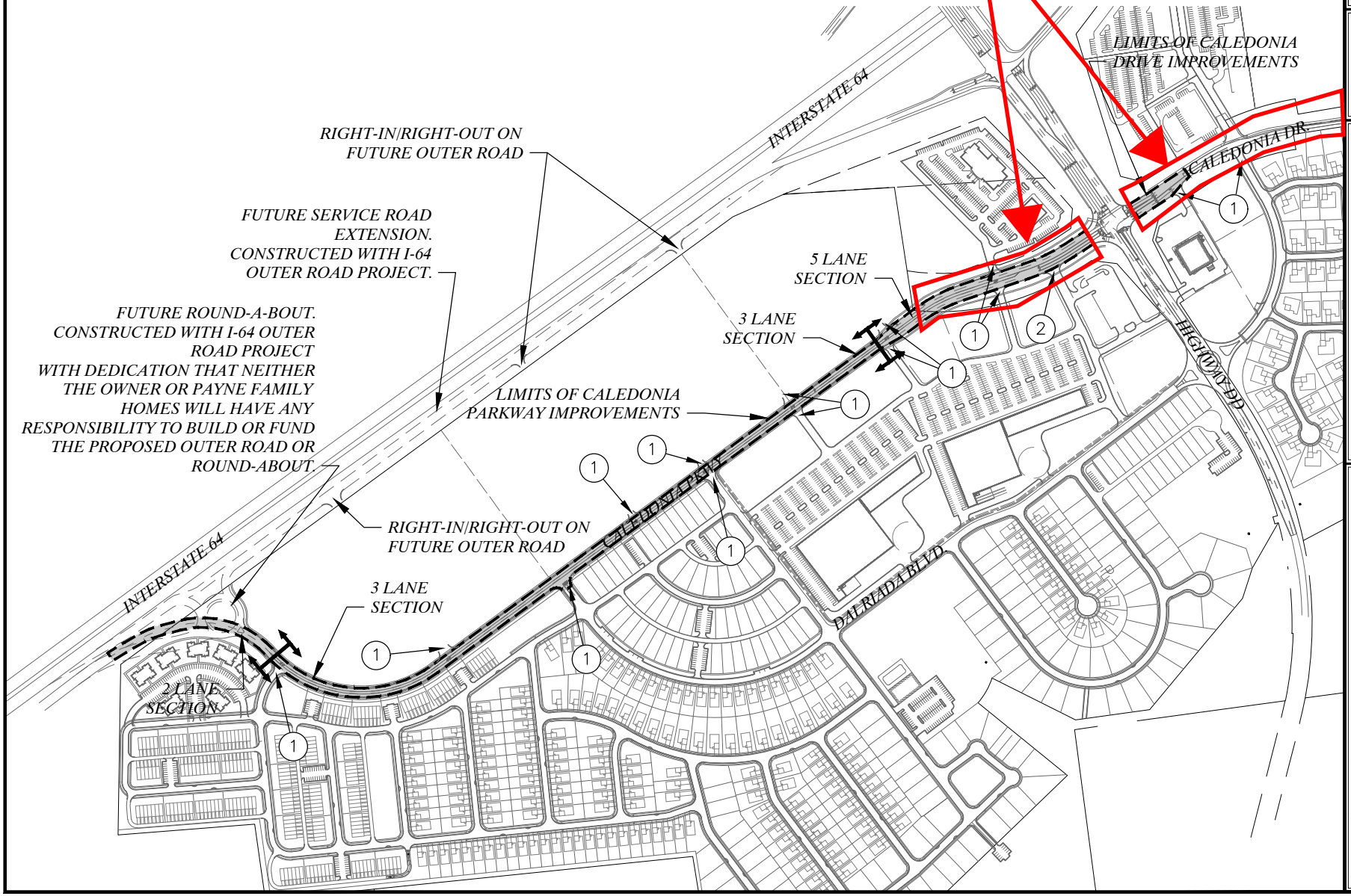
LEGEND

(1) PERMANENT FULL ACCESS IN DESIGN

(2) TEMPORARY FULL ACCESS IN DESIGN

City to take over the two sections, outlined in red boxes.

0 300 600



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O'FALLON, MISSOURI

CALEDONIA PARKWAY EXHIBIT

DRN. BY:	TES
APP'D. BY:	ERR
DATE:	MAR. 20, 2019
SCALE:	1"=600'
PROJ. NO:	17-6821
DWG. NO:	EX. 2

Drawing name: F:\17-6821 - 260 Acre Tract along Hwy 40, O'Fallon, MO\AutoCad Drawings\6821 - Exhibits\Caledonia Pkwy Exhibit.dwg Tab: 8.5X11 Plotted on: Mar 20, 2019 - 2:34pm Plotted by: tschowe

Exhibits - Right-of-Way Donation Letter

THF 40/DD Development, L.L.C.
C/O THF Management, Inc.
17107 Chesterfield Airport Rd., Suite 120
St. Louis, MO 63005

April 8, 2019

Andy Tuerek, P.E.
Area Engineer, St. Charles County
Missouri Department of Transportation
6780 Old Highway N
St. Charles, MO 63304

The Owner agrees to donate without compensation and waiver of appraisal the right of way estimated to be 49,290 square feet for road work on State Highway DD on attached Highway DD Exhibit in red crosshatch contingent upon (a) the MoDOT approving the cost share, (b) St. Charles County approving the cost share and (c) the closing with Payne Family Homes, LLC anticipated to be in November 2019. The Owner intends to donate the green crosshatch to the City but will donate to MoDOT, if necessary. The Owner and Payne are working with the City to make sure the commercial final plat is approved and in recordable form as the instrument to convey at the Closing. The Owner is also donating right of way for Caledonia Parkway, Dalriada Blvd and part of Longhaven Drive at the same time.

Thanks.

Owner:
THF 40/DD DEVELOPMENT, L.L.C., a Missouri limited liability company

BY: Miller Green Management, L.L.C., a Missouri limited liability company, its Manager

By: _____
Robert J. Jakubeck, Manager

CC: Rod Jones/Quadrant Properties, LLC
Brian Jessup/Quadrant Properties, LLC
Steve Bender/City of O'Fallon

Exhibits - Planning and Zoning Approvals (for development)

100 NORTH MAIN STREET
O'FALLON, MISSOURI 63366
636.240.2000
FACSIMILE 636.978.4144
www.ofallon.mo.us

March 18, 2019

Elliott Reed
Cochran Engineering
530A East Independence Drive
Union, Union 63084

RE: (18-011340 and 18-011338) Rezoning and Area Plan for The Streets of Caledonia - from HTCD/High Tech Corridor District to R-3/PUD Garden Apartments and Condo District Planned Unit Development - THF 40DD Development, LLC, property owner - Payne Family Homes, LLC, contract purchaser - proposed use: residential development (Ward 3)

Dear Mr. Reed:

On **March 14, 2019**, the City Council **approved** the above referenced request.

This approval would be contingent upon the following:

1. While staff understands that landscape plans will be provided for the commercial lots as they develop, a revised overall landscape and tree preservation plan that takes the following information into account needs to be provided:
   A. On the landscape plan provide the woodlands saved in Acre units rather than square footage.
   B. Provide conceptual landscape map with existing tree stand layer with residential boundaries, commercial boundaries, and phasing.
   C. A large amount of trees will be taken out during the commercial phase south of Caledonia. Provide existing tree mass for this area.
   D. The Existing tree stand map states there is 98.1 acres west of DD in Residential section- (44.7+53.4+7=98.1 acres). The conceptual landscape plan shows phase 1 & 2 consisting of 79.3 acres. Please explain the difference and show phasing overlay on existing tree stand map. It is difficult to interpret without commercial boundary to confirm the proposed calculations.
   E. Delineate on the landscape plan the required mitigation of 15 trees per acres separate from landscape requirements for street trees and residential lots.
   F. Show and note the location where the replacement trees will be planted
2. The average density of development within the "PUD" shall remain the same as would be permitted if the area were to be developed conventionally. Average density is to be calculated as described in Section 400.236.6. It is unclear if the numbers provided are correct. Area C-2 is shown both on the area plan and the preliminary plat. Please clarify if this is going to be residential as shown on the area plan. It is also unclear whether all common ground has been accounted for. The Code allows common ground to be counted if it is developed as an acceptable amenity or is otherwise developable open space. An undeveloped watershed corridor will not be counted as an acceptable amenity; neither will improvements required by City Code. Using the numbers provided:

   159.24 acres
   – 33.75 acres of ROW
   – 27.09 acres of common ground
   = 98.4 acres

   x 43,560
   = 4,286,304 square feet

   ÷7,500 (minimum lot area in R-3)
   = 571 units allowed if all developed as single family.

There are currently 663 units proposed but this also includes the multi-family portion that is limited to 10 units per acre. Revised calculations breaking out the different dwelling types and land areas needs to be provided. Clarification is needed on the common ground that can be counted toward the density requirement and common ground that cannot. Provide a key map to show these areas and include the acreage in your density calculations. Common ground areas 4, 5, 6, a portion of 1, and the bufferyard areas have been changed on the plan and no longer count toward the density requirement as shown. The buffer strip, the stormwater detention, and the undeveloped watershed corridor are all Code requirements. This means that they should be excluded from the calculations. If the detention pond areas are developed with amenity features (interconnected paths/sidewalks, benches, etc), these could count as amenities and be included in the density calculation. There are several common ground area that have no amenities proposed. Staff believes additional amenities will need to be provided as reviewed and approved on the Final Plan.

3. Include the proposed deviation from City Code regarding the pavement thickness on the list of PUD deviations on the cover page.
4. The City is working with the developer on providing vehicular access to O'Day Park through the development. A parking lot has been shown within a portion of the park. Further details will need to be reviewed with the Parks Director.
5. The recommendations and comments provided by the City's Traffic Consultant in the memo dated 12-26-18 shall be addressed prior to any Site Plans being approved for the commercial area or any Final Plans approved for the residential area.
6. Caledonia Drive and Caledonia Parkway are both names given to the same street. This should be revised to have one consistent name. We believe this has been reviewed. Please provide a written response from MoDOT.
7. Environmental Services will need to review the proposal for trash pickup routing. There are initial concerns about the turning radii being too small for truck movements, the requirement that all trash carts will need to be placed on one side of the one-way alleys, the possibility that there may be no parking allowed on townhome streets during trash service days, and there is no room for carts to be placed.
8. Provide a letter from St. Charles County approving the name of the proposed PUD and all street names.
9. Work with staff to label lots susceptible to street creep. The lots along the curved portion of Upland Loop should be included.
10. Provide color elevations for multi-family structures.
11. Show the method of screening for HVAC units in the multi-family portion of the plan, T-1, with the Final Plan.
12. Verify that the pipeline easement will be vacated and label it on the plat as To Be Vacated.
13. Provide MDNR, Army Corps of Engineers, MODOT, Fire District, Duckett Creek Sanitary District, School District, and PWSD 2 approval. Provide evidence of submittals to MDNR and the Army Corps of Engineers and the copy of the latest correspondence from those entities.
14. Provide proposed grades for the entire Area Plan. These can be five (5) foot contours.
15. Address street calming according to City code.
16. Provide information on how stormwater cleansing will be accomplished.
17. Show how turning movements will work for areas where centerline radii are being made smaller.
18. Remove the designation of right of way for all alleys. Alleys are to be a part of the common ground and covered by utility and ingress/egress easements Provide NO Parking signs in alleys. Label these on the plan.
19. Work with staff on the pedestrian crossings between the residential and commercial parts of the development.
20. Show the crosswalk more clearly on Dalriada Boulevard southeast of Highway DD.
21. Clarify the labeling of the lot details. These should correspond to the lot names on the plan itself.
22. The clubhouse and pool amenity area will require a separate Final Plan.
23. Prior to the issuance of building permits for 40% of the total units, all recreational amenities shall be open for use in Phase 1.
24. Provide a legal description for the PUD area depicted on the Area Plan.
25. Provide the 10 smallest proposed lots.
26. Provide trail connections in a common ground strip in the Burnley Drive and Gallway Court cul-de-sacs.
27. Connect the sidewalks and trail around the retention basin in Area "C-1".
28. Provide a trail connection in a common ground strip in the Upland Court cul-de-sac.
29. Work with staff on the design of the parking lot in Area "C-1" next to Lot 1C. The design appears unfinished. Grading is also a concern.
30. Radii throughout the development shall be 37' pavement and 25' right of way. Work with staff regarding this design.

31. Additional verification is needed from the engineer to ensure the legal description matches the boundaries of the proposed rezonings and Area Plan.

Please take a few moments to go to the following website to fill out a survey relating to the planning and development process. Your input is greatly appreciated.

www.surveymonkey.com/s/PlanningandInspections

If you have questions about the above, feel free to contact my office at 636-379-5544.

Sincerely,

David S. Woods, AICP
Director of Planning and Development

TLC:

C: Michael Snowden, City Administrator
Bill Allen, Payne Family Homes, 10407 Baur Blvd., Suite B, St. Louis, MO 63132
Robert Jakubeck, THF 40/DD Dev, 17107 Chesterfield Airport Rd, Ste 120, St. Louis, MO 63005

Exhibits - Letters of Support

Amanda Brauer, P.E., PTOE
Roads and Traffic Manager

ST. CHARLES COUNTY

April 19, 2019

Brenda Morris
Financial Services Director
Missouri Department of Transportation
P.O. Box 270
Jefferson City, MO 65102

Re: MO DD Improvements

Dear Ms. Morris:

Please accept this letter of support for the City of O'Fallon's application for MO Route DD improvements. This project that provides numerous benefits for our community and region. While the city's application to the Road Board has not yet been approved, the County is fully supportive of this project and plans to provide funding as outlined in the city's application.

This project addresses infrastructure improvements for the region and creates an environment that will foster community development within this area. The project will increase capacity on Route DD and improve safety and efficiency of traffic turning movements to and from Route DD. These improvements will better serve existing traffic in the area, while also accommodating additional trips anticipated from upcoming developments.

As our region continues to grow and experience ever increasing traffic, it is imperative that our transportation system is in place to meet the long-term needs of our community. St. Charles County recognizes the value of this project in mobility improvements on Route DD and looks forward to working with the City of O'Fallon on this project.

Sincerely,

Amanda J. Brauer

Amanda Brauer

201 N. Second St. – Suite 560 I St. Charles, MO 63301 I P 636.949.3074 I 1.800.822.4012 I F 636.949.7416 I roadsandtraffic@sccmo.org I www.sccmo.org

EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

April 22, 2019

Mr. Jeff Schuepfer
Assistant City Engineer
City of O'Fallon
100 N. Main St
O'Fallon, MO 63366

RE: MO DD Improvements Cost Share Application

Dear Mr. Schuepfer:

I strongly support the Cost Share application for the MO DD Improvements project.

Although this project is not identified in the region's current Transportation Improvement Program (TIP), the East-West Gateway Council of Governments, the Metropolitan Planning Organization for the St. Louis region, will amend the TIP if the application is selected to receive funding through the Cost Share Program.

The Council recognizes the importance of local priorities and the need to implement them. Given the present level of federal and state transportation funds available to the St. Louis region, it is unlikely that implementation of such an important project will proceed without an infusion of funds dedicated specifically to the project.

Sincerely,

James M. Wild
Executive Director

Gateway Tower
One Memorial Drive, Suite 1600
St. Louis, MO 63102-2451

314-421-4220
618-274-2750
Fax 314-231-6120

webmaster@ewgateway.org
www.ewgateway.org

MoDOT

Missouri Department of Transportation

St. Louis District
Thomas K. Blair, P.E., District Engineer

1590 Woodlake Drive
Chesterfield, Missouri 63017-5712
314.275.1500
Fax: 573.522.6475
1.888.ASK MODOT (275.6636)

October 31, 2018

ATTN: Cost Share Committee
RE: O'Fallon

Dear Committee:

This letter is to provide MoDOT St. Louis District's support for O'Fallon's cost share application for proposed improvements to MO Route DD near I-64.

We agree that the purpose of the project would be to:

- Increase capacity of Route DD
- Improve safety and efficiency of traffic turning movements (roundabout, signal or other)
- Improve traffic flow for both existing traffic and additional trips generated from pending developments on the south side of the I64/DD interchange.

The city anticipates that their pending traffic impact study will further support the submitted concept.

These improvements will be needed on MoDOT right-of-way and we will have to review the specific plans for improvements on our system before final design plans are approved and construction can begin. Due to the anticipated growth of the state system and complexity to maintain additional infrastructure, the City of O'Fallon has proposed to take over Caledonia Parkway.

If you have any further questions, please contact Andy Tuerck, our St. Charles County Area Engineer at 314-453-5046 or by email at andrew.tuerck@modot.mo.gov.

Sincerely,

Thomas K. Blair, P.E.
St. Louis District Engineer

Cc: Andy Tuerck - slae

Exhibits - Traffic Study

Link to a dropdox link to download the Synchro files for this application:

https://www.dropbox.com/s/brfrlekozxxnf8j/Synchro%20to%20City%20%26%20MoDOT.zip?dl=0

Traffic Impact Study
Streets of Caledonia

O'Fallon, Missouri

November 29, 2018

Prepared For:

Payne Family Homes
10411 Baur Boulevard
St. Louis, Missouri 63132

Prepared by:

Lochmueller Group, Inc.
411 North 10th Street, Suite 200
St. Louis, Missouri 63101

517-0104-0TE

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EXECUTIVE SUMMARY

Lochmueller Group prepared the following traffic impact study for the proposed Streets of Caledonia in O'Fallon, Missouri. The 260-acre multi-use development would be located, predominantly, in the northwest quadrant of Interstate 64 (I-64) and Missouri Highway DD/Winghaven Boulevard. A small portion of the development would extend across Highway DD adjacent to the existing Regal Cinema.

The development would be phased with a portion being complete by 2025. However, full built-out is not be expected until beyond 2030. Phase 1 was assumed to include all retail and restaurant uses along with a portion of the residential development. In total, 164 homes and approximately 220,000 square feet (SF) of retail are reflected in Phase 1. Full build-out would include the remaining residential development, which consists of 500 additional homes, plus nearly 1.1 million SF of office space.

Primary access to the site is proposed via Highway DD. Caledonia Drive would be extended north across Highway DD and through the site, where it would be known as Caledonia Parkway. Secondary access to the site would be provided via a new roadway parallel to Caledonia Parkway to be named Dalriada Boulevard.

The purpose of this study was to identify how much traffic would be generated by the Streets of Caledonia development; evaluate the impacts of the additional traffic upon the existing public road network; and recommend off-site road improvements to accommodate the site's traffic and mitigate any impacts. This analysis focused on the morning and evening commuter peak periods on a typical weekday.

A 2017 Baseline scenario was evaluated to provide a snapshot of conditions as they exist today. Overall, the study intersections operate favorably under 2017 baseline conditions. However, the southbound left-turn movement at Highway DD and the I-64 Eastbound Ramps operates at LOS F during the morning peak hour.

A 2025 No Build scenario was developed and evaluated to serve as a benchmark of future conditions from which to compare forecasted conditions with Phase 1 of the Streets of Caledonia development. Overall, the study intersections would continue to operate favorably. However, the constraints identified for the 2017 baseline would be exacerbated. Delays for the southbound left-turn movement at Highway DD and the I-64 Eastbound Ramps would exceed 2 minutes per vehicle on average during the morning peak hour.

The 2025 Build scenario evaluates the impact of Phase 1 of the Streets of Caledonia development. Comparing this scenario to the 2025 No Build reveals the traffic impacts due to the proposed development and the improvements needed to mitigate the impacts. Phase 1 of the proposed development would generate a net total of approximately 1,540 and 2,055 external trips during the morning and afternoon peak hours, respectively. A portion of these

trips would be common and pass-by/diverted in nature, so approximately 1,188 and 1,195 "new" trips would be generated during these respective peak hours.

The following transportation improvements are recommended to accommodate Phase 1 of the Streets of Caledonia and the Drury Development:

1. **Signalize the intersection of Highway DD with Caledonia Parkway/Caledonia Drive.** The intersection's lane configuration should be as follows:
    - Westbound: Dual left-turn lanes, two through lanes, and one right-turn lane
    - Eastbound: One left-turn lane, one through lane, and one shared through/right-turn lane
    - Southbound: Dual left-turn lanes, one shared through/right-turn lane
    - Northbound: One left-turn lane, one through lane, and one right-turn lane

    The need for westbound dual left-turn lanes would be driven, in part, by traffic generated by the 40 DD Sports LLC development. Phase 1 of that development would generate 230 left-turns during the afternoon peak hour. Note that the westbound right-turn lane should extend back to the I-64 Eastbound Ramps.

2. **Construct a roundabout at Highway DD and Dalriada Boulevard.** A single-lane roundabout is recommended with all approaches having a single entering lane, except for the westbound approach which should have a separate right-turn lane configured as either a by-pass lane or dedicated lane within the roundabout itself.

3. **Configure the proposed site access driveway on Highway DD between Caledonia Parkway and Dalriada Boulevard to Right-In Right-Out Only.** A westbound right-turn lane would be warranted on Highway DD at the proposed right-in right-out access driveway, whereas an eastbound right-turn lane would not be warranted.

4. **Expand the capacity of the Highway DD intersection with the I-64 Eastbound Ramps by implementing the following improvements:**
    - Extend the existing eastbound right-turn lane on Highway DD (which measures about 200 feet in length) back to the intersection with Caledonia Parkway. This lane extension was recommended by the 40 DD Sports LLC Traffic Impact Study as a needed improvement to mitigate the impact of Phase 2 of that development.
    - Provide three through lanes on the eastbound approach to the intersection.
    - Add a second westbound through lane on Highway DD at the intersection.
    - Provide a second left-turn lane on the I-64 Eastbound Off-Ramp. This improvement is needed to mitigate an existing deficiency independent of future development and could be construed as the responsibility of others.

5. **Expand the capacity of the Highway DD intersection with the I-64 Westbound Ramps by implementing the following improvements:**
    - Add a second left-turn lane on the I-64 Westbound Off-Ramp.
    - Expand the westbound Highway DD/Winghaven Boulevard approach to provide three through lanes at the intersection.

6. **Convert eastbound left-turn movement on Winghaven Boulevard at Technology Drive/MasterCard Boulevard to dual left-turn lanes**. Note that the left-turn volume not be materially affected by the proposed development, and so the Streets of Caledonia would not directly benefit from increased left-turn capacity. However, the proposed development would increase the east-west through movements on Winghaven Boulevard. This improvement represents the most cost-effective opportunity to increase the intersection's capacity to mitigate the impact of the additional through traffic.

It was concluded that the prescribed transportation improvements for the 2025 Build scenario would accommodate the traffic generation of Phase 1 of the Streets of Caledonia and effectively mitigate any adverse impacts. In fact, the recommended improvements would enable some intersections to operate more effectively as compared to the No Build condition, despite heavier traffic volumes due to the proposed development.

A 2045 No Build scenario was developed to serve as a benchmark of long-term conditions without the proposed development from which to compare Build conditions including full build-out of the Streets of Caledonia. The anticipated traffic growth would cause operating conditions to deteriorate at the study area intersections by 2045, as follows:

- The intersection of Winghaven Boulevard with Technology Drive/MasterCard Boulevard would operate at LOS E overall during the afternoon peak hour;
- The ramp terminal intersections at the Highway DD/Winghaven Boulevard interchange with I-64 would become constrained during the morning peak hour, when both the eastbound and westbound I-64 off-ramp approaches would operate at LOS F; and
- The intersection of Highway DD with Caledonia Drive would be adversely impacted by full build-out of the 40 DD Sports LLC development, such that the northbound approach on Caledonia Drive would operate at LOS F during both peak hours.

The 2045 Build scenario was developed to evaluate full build-out of the Streets of Caledonia. The proposed development at full build-out would generate a net total of approximately 2,811 and 3,445 external trips during the morning and afternoon peak hours, respectively. A portion of these trips would be common and pass-by/diverted in nature, so approximately 2,451 and 2,585 "new" trips would be generated during these respective peak hours.

The following transportation improvements are recommended to accommodate full build-out:

1. **Implement all transportation improvements previously recommended for the 2025 Build Scenario (Streets of Caledonia Phase 1 analysis).**

2. **Add a dedicated eastbound right-turn lane at Highway DD and Caledonia Parkway/Caledonia Drive.**

3. **Reconfigure the roundabout at Highway DD and Dalriada Boulevard to accommodate two eastbound and westbound through lanes in each direction on Highway DD.**

4. **Add a fourth westbound through lane on Winghaven Boulevard at the I-64 Westbound Ramps intersection.** Note that the 7 traffic lanes proposed for the Highway DD/Winghaven Boulevard overpass over I-64 would not preclude the addition of the Texas U-Turn movement identified as part of the Horner & Shifrin I-64 one-way outer roads concept. The overpass currently has over 125 feet of pavement width.

5. **Connect Caledonia Parkway to the existing two-way I-64 South Outer Road and the new I-64 one-way outer road with a single-lane roundabout.**

6. **Provide direct access to the Streets of Caledonia along the proposed I-64 one-way outer road.** These connections would be particularly critical, as the access redundancy would significantly lessen the development's reliance on Highway DD and its signalized intersection with Caledonia Parkway to provide access for the site.

   Approximately 3,000 feet of distance would exist along the one-way outer road between the right-out from the roundabout at Caledonia Parkway and the gore for the slip ramp onto eastbound I-64. A total of 3 access driveways could be accommodated along this segment and remain compliant with MoDOT's Access Management Guidelines. As the development plan solidifies for the office portion of the developments, the locations of the 3 driveways should be optimized to maintain a minimum of 660 feet of spacing from adjacent driveways (measured centerline-to-centerline).

It was concluded that the prescribed transportation improvements noted above would accommodate the full traffic generation of the Streets of Caledonia and effectively mitigate any adverse impacts. In fact, the recommended improvements would substantially improve operations at some locations as compared to the 2045 No Build condition. All intersections and approaches would operate at LOS E or better during the peak hours.

INTRODUCTION

Lochmueller Group prepared the following traffic impact study for the proposed Streets of Caledonia in O'Fallon, Missouri. The 260-acre multi-use development would be located, predominantly, in the northwest quadrant of Interstate 64 (I-64) and Missouri Highway DD/Winghaven Boulevard. A small portion of the development would extend across Highway DD adjacent to the existing Regal Cinema.

The development would be phased with a portion being complete by 2025. However, full built-out is not be expected until beyond 2030. Phase 1 was assumed to include all retail and restaurant uses along with a portion of the residential development. In total, 164 homes and approximately 220,000 square feet (SF) of retail are reflected in Phase 1. Full build-out would include the remaining residential development, which consists of 500 additional homes, plus nearly 1.1 million SF of office space. The site plan is illustrated in **Appendix I**.

Primary access to the site is proposed via Highway DD. Caledonia Drive would be extended north across Highway DD and through the site, where it would be known as Caledonia Parkway. In addition to providing access to the development, Caledonia Parkway would connect to the existing I-64 South Outer Road, forming a through route between Highway DD and Highway N to the north. Secondary access to the site would be provided via a new roadway parallel to Caledonia Parkway named Dalriada Boulevard.

The purpose of this study was to identify how much traffic would be generated by the Streets of Caledonia development; evaluate the impacts of the additional traffic upon the existing public road network; and recommend off-site road improvements to accommodate the site's traffic and mitigate any impacts.

This analysis focused on the morning and evening commuter peak periods on a typical weekday. These periods represent the busiest times for the study area roadways as well as the proposed uses. Therefore, if traffic generated by the development can be accommodated at these times, it stands to reason that adequate capacity would be available throughout the remainder of the day.

The following intersections were included in this study:

- Winghaven Boulevard at Technology Drive/MasterCard Boulevard;
- Highway DD at Westbound I-64 Ramps;
- Highway DD at Eastbound I-64 Ramps;
- Highway DD at Caledonia Drive/Caledonia Parkway;
- Highway DD at proposed unsignalized driveway between Caledonia Parkway and Dalriada Boulevard;
- Highway DD at Dalriada Boulevard; and
- I-64 South Outer Road at Caledonia Parkway/Site Access Driveways.

Traffic impact studies typically evaluate conditions at the opening year of development and then again 20 years post-opening, which is known as the design horizon. In the case of phased developments, short-term phases are commonly evaluated at the opening year and long-term phases are evaluated at the design horizon. 2025 was selected as the Phase 1 analysis year. Accordingly, 2045 was selected as the design year and reflects full build-out of the development.

In addition to the Streets of Caledonia, other future projects are planned for the study area that influence this analysis, as follows:

- Specifically, **40 DD Sports LLC** has secured entitlements for additional phased development on the south side of Highway DD opposite the Streets of Caledonia (adjacent to the existing Regal Movie Theater). Only a portion of Phase 1 of the development plan has been constructed. Therefore, the traffic volumes forming the basis for this study were taken from the Phase 1 forecast in the approved 40 DD Sports LLC Traffic Impact Study. Phase 2 remains unbuilt. Per the 40 DD Sports LLC Traffic Impact Study, Phase 2 was assumed to be completed by 2037. For compatibility with this study's scenarios, Phase 2 of 40 DD Sports LLC was reflected in the 2045 horizon year.

- **Drury Development** plans to develop a 200-room hotel, 9,000 SF high-turnover sit-down restaurant, and 24,000 SF retail adjacent to the intersection of Highway DD and Caledonia Parkway. While this development is separate from the Streets of Caledonia, completion was assumed by 2025, and so this project was incorporated with Phase 1 of the Streets of Caledonia.

- **Horner & Shifrin** developed a concept for reconfiguring the outer roadways along I-64. The concept proposes a one-way south outer road to I-64 adjacent to the Streets of Caledonia site. In addition, a Texas U-turn would be incorporated into the Highway DD/Winghaven Boulevard interchange with I-64 (for the eastbound to westbound movement) and a new eastbound on-ramp would be provided. The existing south outer road would remain two-way. This concept was reflected in the 2045 scenarios, as it was deemed unlikely to be implemented by 2025.

The proposed scenarios in **Table 1** provide the framework for the traffic impact analyses included in this study. The analyses utilize a series of no build and build scenarios to identify traffic impacts. No build scenarios represent baseline conditions which build scenarios with development are compared against. Impacts are identified when levels of service in a build scenario degrade relative to the corresponding no build scenario. Each scenario is defined by the amount of development and traffic growth as well as by the configuration of the transportation system. This study was prepared in accordance with parameters discussed and approved in advance by MoDOT, St. Charles County, and the City of O'Fallon.

A study area map is illustrated in **Exhibit 1**. The existing study area transportation system is summarized in **Appendix A**. Note that for purposes of this analysis, Highway DD and Winghaven Boulevard were reported as running east and west. Caledonia Parkway, Dalriada Boulevard, Technology Drive, and MasterCard Boulevard were reported as running north and south.

Table 1: Summary of Traffic Study Phasing

Study Scenario	Development and Growth Assumptions	Transportation System Configuration
2017 Baseline	• 40 DD Sports LLC Phase 1	• Existing
2025 No Build	• Background Growth (8 years) • 40 DD Sports LLC Phase 1	• Existing
2025 Build	• Background Growth (8 years) • 40 DD Sports LLC Phase 1 • Streets of Caledonia Phase 1 • Drury Development	• Caledonia Parkway Complete • Streets of Caledonia Phase 1 Improvements
2045 No Build	• Background Growth (28 years) • 40 DD Sports LLC Phase 1 & 2	• Horner & Shifrin Concept for I-64 One-Way Outer Roads
2045 Build	• Background Growth (28 years) • 40 DD Sports LLC Phase 1 & 2 • Streets of Caledonia Build-Out • Drury Development	• Caledonia Parkway Complete • Streets of Caledonia All Improvements • Horner & Shifrin Concept for I-64 One-Way Outer Roads

Exhibit 1: Study Area Map

2017 BASELINE SCENARIO

A 2017 baseline scenario was evaluated to provide a snapshot of conditions as they currently existing. The results from this evaluation helped validate the traffic analysis methodology, while revealing existing traffic issues.

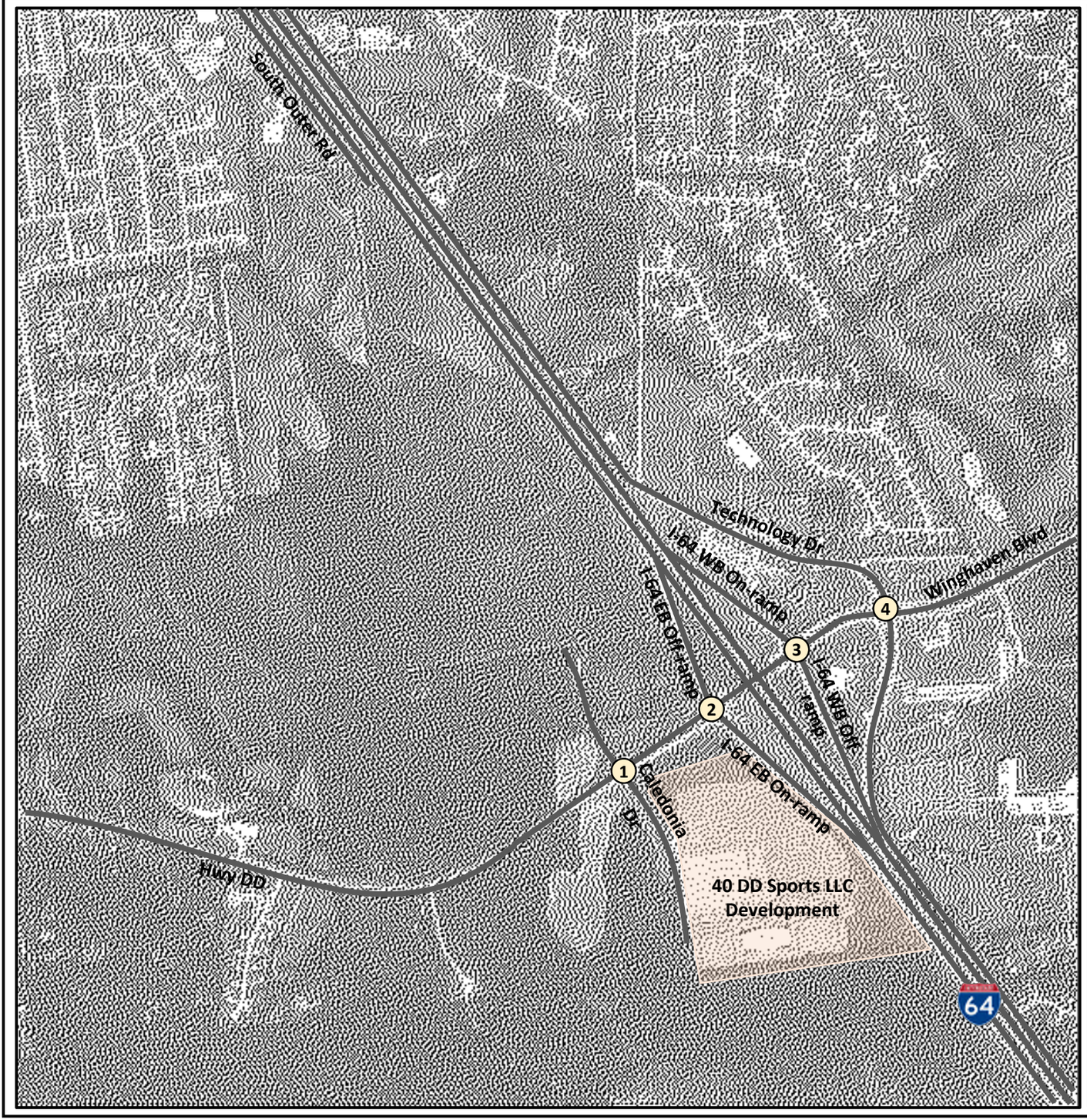
Baseline developments include Phase 1 of the 40 DD Sports LLC development, located across Highway DD from the Streets of Caledonia. While the soccer fields portion of Phase 1 is complete, the remaining portion consisting of the commercial uses remains unbuilt. Therefore, it was necessary to utilize the Phase 1 forecasted volumes from the approved 40 DD Sports LLC Traffic Impact Study as the traffic volume basis for this scenario. These volumes are depicted in **Exhibit 2** and summarized in **Appendix B**.

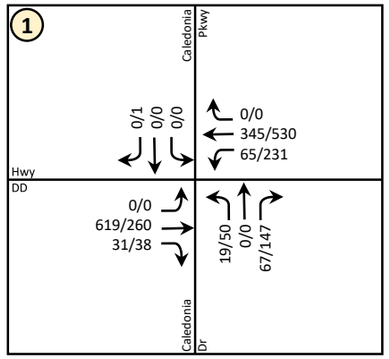
This scenario reflects the existing transportation system configuration. No improvements were prescribed in conjunction with Phase 1 of the 40 DD Sports LLC development.

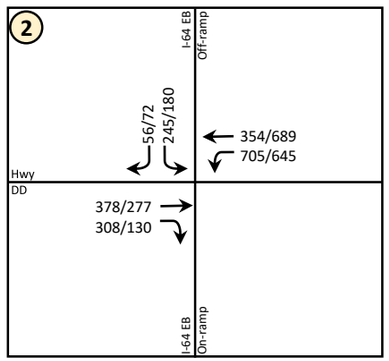
Baseline 2017 operating conditions, summarized in **Table 2**, were analyzed using the common operational methodology applied to all scenarios as described in **Appendix C**. Overall, the study intersections operate favorably under 2017 baseline conditions. Each intersection operates at LOS D or better overall during the morning and afternoon commuter peak hours.

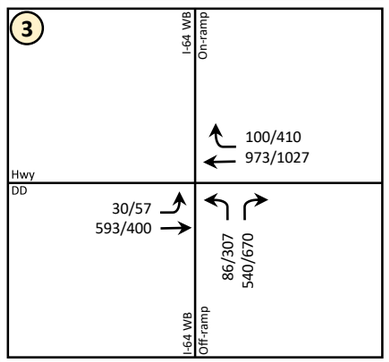
That said, the southbound left-turn movement at Highway DD and the I-64 Eastbound Ramps operates at LOS F during the morning peak hour. This movement is served by a single left-turn lane, which provides insufficient capacity for the volume of traffic during the morning peak hour. This movement is heavily influenced by commuters destined to MasterCard and other businesses located along Technology Drive/MasterCard Boulevard along the east side of I-64.

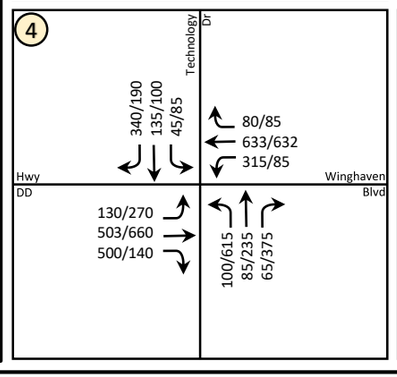
The intersection of Winghaven Boulevard with Technology Drive/MasterCard Boulevard is highly utilized during the afternoon peak hour. Although the intersection operates acceptably, all intersection approaches operate at LOS D and three of four approaches have 95th percentile queue lengths in excess of 300 feet. Similar to the morning peak hour constraint, this intersection serves afternoon commuters departing MasterCard and other nearby businesses. As volumes increase in the future, conditions at this location would be expected to deteriorate.











Legend

X/Y — AM/PM Peak Hour Traffic Volumes (vph)

Weekday AM Peak – 7:00 AM to 8:00 AM
Weekday PM Peak – 4:30 PM to 5:30 PM

N

(Not To Scale)

Exhibit 2: 2017 Baseline Traffic Volumes

Table 2: 2017 Baseline Operating Conditions

Int #	Intersection/ Approach	AM Peak Hour			PM Peak Hour		
		LOS	Delay (sec/veh)	95th % Queue (ft)	LOS	Delay (sec/veh)	95th % Queue (ft)
1	***Highway DD @ Caledonia Drive (Unsignalized, Side Street STOP Control)***						
	Overall Intersection	-	-	-	-	-	-
	Eastbound Left-turn	A	0.0	0	A	0.0	0
	Westbound Left-turn	A	1.5	5 LT	A	2.6	18 LT
	Northbound Approach	C	18.2	15 RT	D	26.0	58 LT
	Southbound Approach	A	0.0	0	B	12.0	0
2	***Highway DD @ I-64 Eastbound Ramps (Signalized)***						
	Overall Intersection	**D**	**36.9**	-	**C**	**23.8**	-
	Eastbound Approach	D	35.8	#391 T	C	34.0	302 T
	Westbound Approach	B	13.1	130 LT	B	16.3	244 T
	I-64 EB Off-Ramp	**F**	**106.0**	**#278 LT**	D	44.8	209 LT
3	***Highway DD/Winghaven Boulevard @ I-64 Westbound Ramps (Signalized)***						
	Overall Intersection	**A**	**8.9**	-	**B**	**12.4**	-
	Eastbound Approach	A	3.4	m22 LT	B	14.5	127 T
	Westbound Approach	A	5.9	133 T	A	5.7	m223 T
	I-64 WB Off-Ramp	B	19.1	101 LT	C	21.4	330 LT
4	***Winghaven Boulevard @ Technology Drive/MasterCard Boulevard (Signalized)***						
	Overall Intersection	**C**	**25.5**	-	**D**	**39.0**	-
	Eastbound Approach	C	22.6	m187 RT	D	36.2	#332 LT
	Westbound Approach	C	29.7	245 T	D	36.9	320 T
	Northbound Approach	C	28.5	55 LT	D	42.4	#360 LT
	Southbound Approach	C	21.8	136 T	D	40.3	#146 LT

LT/T/RT - Maximum queue on left turn (LT)/through (T)/ right turn (RT) movement

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

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

2025 NO BUILD SCENARIO

A 2025 No Build scenario was developed and evaluated to serve as a benchmark of future conditions from which to compare forecasted conditions with Phase 1 of the Streets of Caledonia development.

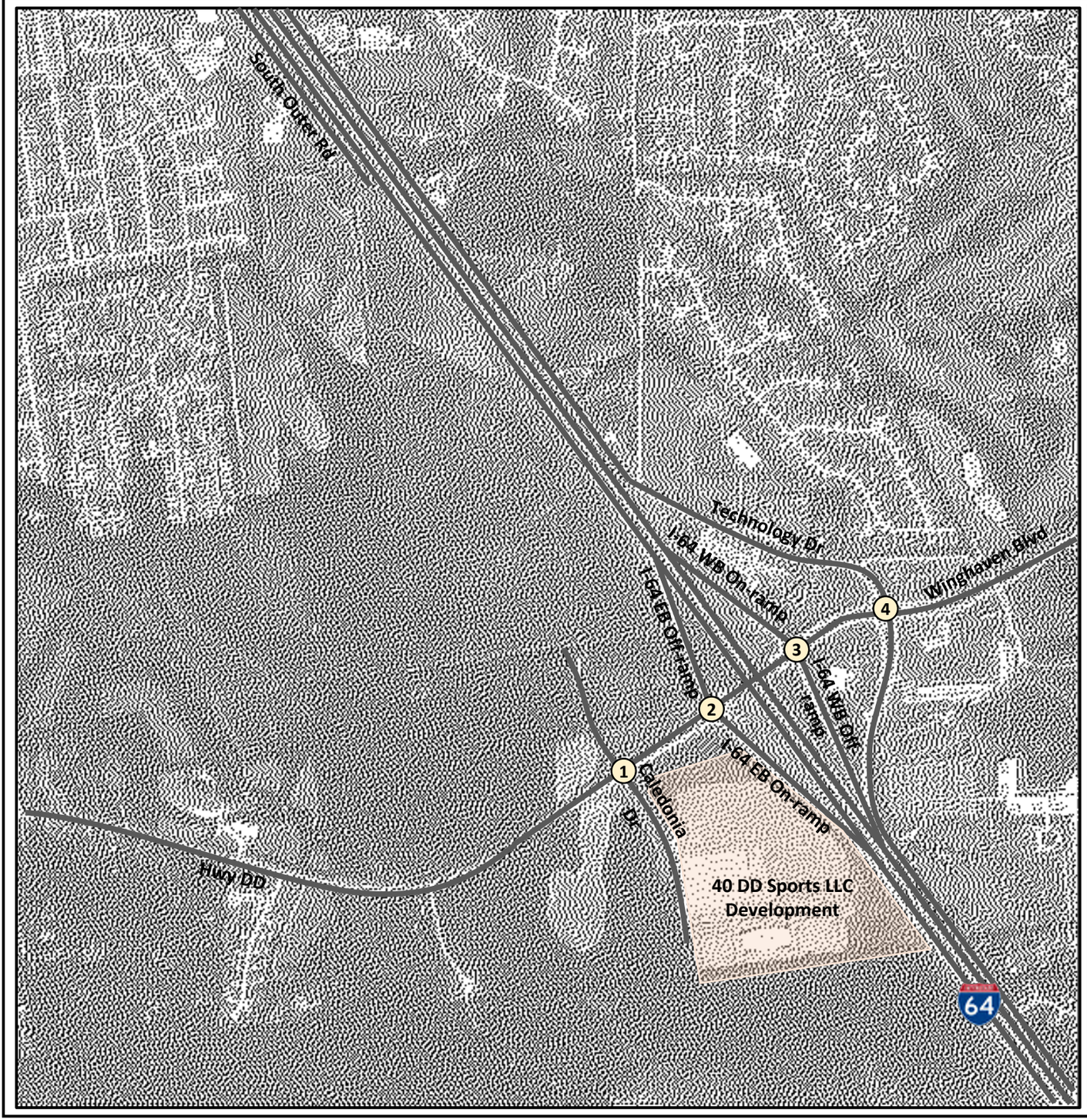
This scenario reflects 8 years of "background" traffic growth applied to the 2017 Baseline scenario. Background traffic growth occurs organically over time due to generalized increases in traffic, which can be attributed to population and employment growth, other developments in the surrounding area, or simply additional trip-making by existing populations. Background traffic was assumed to increase at an average rate of 1 percent annually on Highway DD, Winghaven Boulevard, Technology Drive/MasterCard Boulevard, and I-64. This rate was determined from the St. Charles County Travel Demand Model, as summarized in **Appendix F**. 2025 No Build traffic volumes are summarized in **Exhibit 3**.

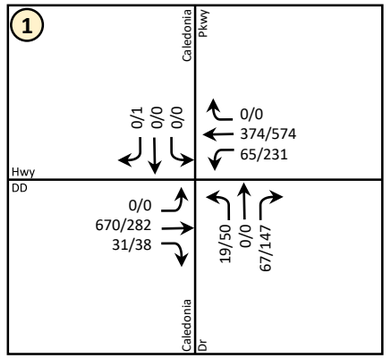
This scenario reflects the existing transportation system configuration, as there are no committed transportation improvements that would be implemented within the study area by 2025 (excluding improvements related to the proposed development).

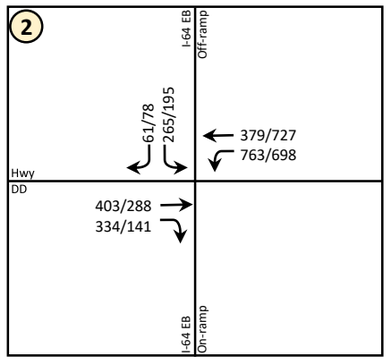
2025 No Build operating conditions, summarized in **Table 3**, were analyzed using the common operational methodology applied to all scenarios and summarized in **Appendix C**. Overall, the study intersections would continue to operate favorably under 2025 No Build conditions. Each intersection would operate at LOS D or better overall during the morning and afternoon commuter peak hours.

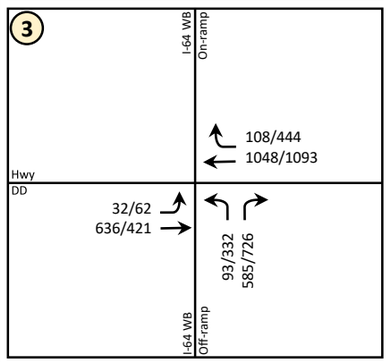
However, delays for the southbound left-turn movement at Highway DD and the I-64 Eastbound Ramps would be exacerbated. The movement would operate at LOS F with average delay exceeding 2 minutes per vehicle during the morning peak hour. Given the findings of both the 2017 and 2025 No Build scenarios, it can be concluded that a second left-turn lane for this movement is needed independent of the proposed Streets of Caledonia development. Rather, the need for additional capacity is driven by existing commercial uses along the east side of I-64 and their commuter traffic demands.

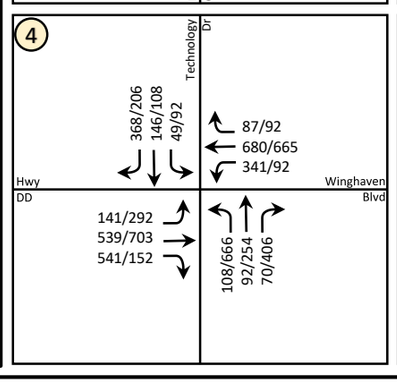
The intersection of Winghaven Boulevard with Technology Drive/Master Card Boulevard would continue to operate at LOS D overall during the afternoon peak hour. As expected, conditions would be worse under 2025 No Build traffic compared to the 2017 Baseline. Delays on the northbound approach (serving traffic departing MasterCard) would begin to approach LOS E and 95th percentile queue lengths would near 400 feet for critical movements at the intersection.











Legend

X/Y — AM/PM Peak Hour Traffic Volumes (vph)

Weekday AM Peak – 7:00 AM to 8:00 AM
Weekday PM Peak – 4:30 PM to 5:30 PM

N

(Not To Scale)

Exhibit 3: 2025 No Build Traffic Volumes

Table 3: 2025 No Build Operating Conditions

Int #	Intersection/ Approach	AM Peak Hour			PM Peak Hour		
		LOS	Delay (sec/veh)	95th % Queue (ft)	LOS	Delay (sec/veh)	95th % Queue (ft)
1	***Highway DD @ Caledonia Drive (Unsignalized, Side Street STOP Control)***						
	Overall Intersection	-	-	-	-	-	-
	Eastbound Left-turn	A	0.0	0	A	0.0	0
	Westbound Left-turn	A	1.4	8 LT	A	2.5	18 LT
	Northbound Approach	C	20.0	15 RT	D	29.9	65 LT
	Southbound Approach	A	0.0	0	B	12.4	0
2	***Highway DD @ I-64 Eastbound Ramps (Signalized)***						
	Overall Intersection	**D**	**43.0**	-	**C**	**25.1**	-
	Eastbound Approach	D	42.8	#428 T	D	34.4	314 T
	Westbound Approach	B	13.6	160 LT	B	18.3	318 T
	I-64 EB Off-Ramp	**F**	**132.8**	**#309 LT**	D	45.0	224 LT
3	***Highway DD/Winghaven Boulevard @ I-64 Westbound Ramps (Signalized)***						
	Overall Intersection	**B**	**12.3**	-	**B**	**13.8**	-
	Eastbound Approach	A	3.3	m22 LT	B	15.8	141 T
	Westbound Approach	A	6.2	146 T	A	6.2	m220 T
	I-64 WB Off-Ramp	C	31.3	#114 LT	C	24.1	361 LT
4	***Winghaven Boulevard @ Technology Drive/MasterCard Boulevard (Signalized)***						
	Overall Intersection	**C**	**27.3**	-	**D**	**43.1**	-
	Eastbound Approach	C	25.4	m227 RT	D	37.6	#374 LT
	Westbound Approach	C	30.9	266 T	D	38.8	340 T
	Northbound Approach	C	29.1	58 LT	D	50.8	#407 LT
	Southbound Approach	C	23.3	145 T	D	43.2	#164 LT

LT/T/RT - Maximum queue on left turn (LT)/through (T)/ right turn (RT) movement

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

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

2025 BUILD SCENARIO

The 2025 Build scenario evaluated the impact of Phase 1 of the Streets of Caledonia development. Comparing this scenario to the 2025 No Build revealed the traffic impacts due to the proposed development and the improvements needed to mitigate the impacts.

Forecasted Traffic Volumes

Traffic forecasted for the 2025 Build scenario reflects the 2025 No Build scenario plus Phase 1 of the Streets of Caledonia and development of the Drury site. The trip generation methodology, including the common trip and pass-by/diverted trip percentages, is summarized in **Appendix D**. Note that this methodology was previously submitted to and approved by MoDOT, St. Charles County, and the City of O'Fallon.

Phase 1 of the Streets of Caledonia reflects the following uses:

- 141 Single-Family Homes
- 23 Neo-Traditional Homes
- 146,500 square feet of Retail Space
- 13 Commercial Outlots assumed to develop as follows:
    - 1 Gas Station and C-store (12 vehicle fueling positions)
    - 4 Fast Food Restaurants (3,000 SF each)
    - 3 High-Turnover Sit-Down Restaurants (7,000 SF each)
    - 2 Banks with Drive-Thru (4,500 SF each)
    - 2 Retail Outlots (5,000 SF each)
    - 1 Pharmacy with Drive-Thru (11,725 SF)

In addition, the Drury Development reflects the following uses:

- 200-room Hotel
- 1 High-Turnover Sit-Down Restaurant (9,000 SF)
- Retail with 24,000 SF

In an effort to be conservative, all uses were assumed to be open during the morning peak hour, despite the fact it is common for some uses – namely retail, restaurants, and banks – to be closed.

The trip generation forecast for Phase 1 of the Streets of Caledonia and the Drury Development is summarized in **Table 4**. As shown, the proposed development in Phase 1 would generate a net total of approximately 1,540 and 2,055 external trips during the morning and afternoon peak hours, respectively. A portion of these trips would be common and pass-by/diverted in nature, so approximately 1,188 and 1,195 "new" trips would be generated during these respective peak hours.

Table 4: Streets of Caledonia Phase 1 Trip Generation Forecast

	Land Use	ITE Code	Size	Unit	AM Peak Hour			PM Peak Hour		
					Total	IN	OUT	Total	IN	OUT
North of Hwy DD	Single Family Home	210	96	Units	75	20	55	100	65	35
	Retail	820	156.5	KSF	230	145	85	755	360	395
	Gasoline/Service Station With Convenience Market	945	12	VFP	150	75	75	170	85	85
	Fast-Food Restaurant with Drive-Through Window	934	6	KSF	240	120	120	195	100	95
	High-Turnover (Sit-Down) Restaurant	932	21	KSF	210	115	95	205	125	80
	Drive-in Bank	912	4.5	KSF	45	25	20	90	45	45
	Drury Hotel	310	200	room	95	55	40	125	65	60
	Drury High-Turnover (Sit-Down) Restaurant	932	9	KSF	90	50	40	90	55	35
	Drury Retail	820	24	KSF	165	100	65	190	90	100
	Sub-total				**1300**	**705**	**595**	**1920**	**990**	**930**
	Common Trips				(150)	(82)	(68)	(340)	(176)	(164)
	Net Total Trips				**1150**	**623**	**527**	**1580**	**814**	**766**
	Pass-by Trips				*230*	*115*	*115*	*670*	*335*	*335*
	New Trips				***920***	***508***	***412***	***910***	***479***	***431***
South of Hwy DD	Single Family Home	210	68	Units	60	15	45	70	45	25
	Pharmacy/Drugstore with Drive-Through Window	881	11.725	KSF	45	25	20	120	60	60
	Fast-Food Restaurant with Drive-Through Window	934	6	KSF	240	120	120	195	100	95
	Drive-in Bank	912	4.5	KSF	45	25	20	90	45	45
	Sub-total				**390**	**185**	**205**	**475**	**250**	**390**
	Pass-by Trips				*130*	*65*	*65*	*190*	*95*	*130*
	New Trips				***260***	***120***	***140***	***285***	***155***	***260***
Total for Phase 1	**Sub-total**				**1690**	**890**	**800**	**2395**	**1240**	**1155**
	Common Trips				(150)	(82)	(68)	(340)	(176)	(164)
	Net Total Trips				**1540**	**808**	**732**	**2055**	**1064**	**991**
	Pass-by Trips				*360*	*180*	*180*	*860*	*430*	*430*
	New Trips				***1180***	***628***	***552***	***1195***	***634***	***561***

The site-generated trips were assigned into and out of the proposed development based upon an anticipated direction distribution that was determined using guidance from the St. Charles County Travel Demand Model. The distribution percentages are summarized in **Table 5** and in **Appendix E**.

Table 5: Streets of Caledonia Phase 1 Directional Distribution Percentages

Origin/Destination	Retail North of Hwy DD	Retail South of Hwy DD	Residential
To/From I-64 East	15%	12%	34%
To/From I-64 West	15%	12%	15%
To/From East on Winghaven Boulevard	35%	28%	35%
To/From North on Technology Drive	2%	1%	0%
To/From South on MasterCard Boulevard	10%	8%	1%
To/From West on Highway DD	10%	8%	5%
To/From North on South Outer Road	6%	5%	10%
Local Trips Across Highway DD	7%	26%	0%

The Phase 1 Streets of Caledonia and Drury site-generated traffic volumes are illustrated in **Exhibit 4**. The majority of trips would utilize Caledonia Parkway and its intersection with Highway DD for access into and out of the site. Most traffic would then travel to/from the east on Highway DD for access to I-64 and Winghaven Boulevard. The site-generated traffic volumes were aggregated with the 2025 No Build traffic volumes resulting in a 2025 Build traffic forecast summarized in **Exhibit 5**.

The 2025 Build forecasts also incorporate cut-through traffic on Caledonia Parkway traveling between Highway DD and the I-64 South Outer Road. This traffic consists of existing trips diverted through the Streets of Caledonia site from other routes, due to the completion of Caledonia Parkway. The cut-through volumes were estimated using the St. Charles County Regional Travel Demand Model, which forecasted approximately 1,300 vehicles per day on Caledonia Parkway traveling through the site. This volume would translate into approximately 130 cut-through trips during each peak hour.

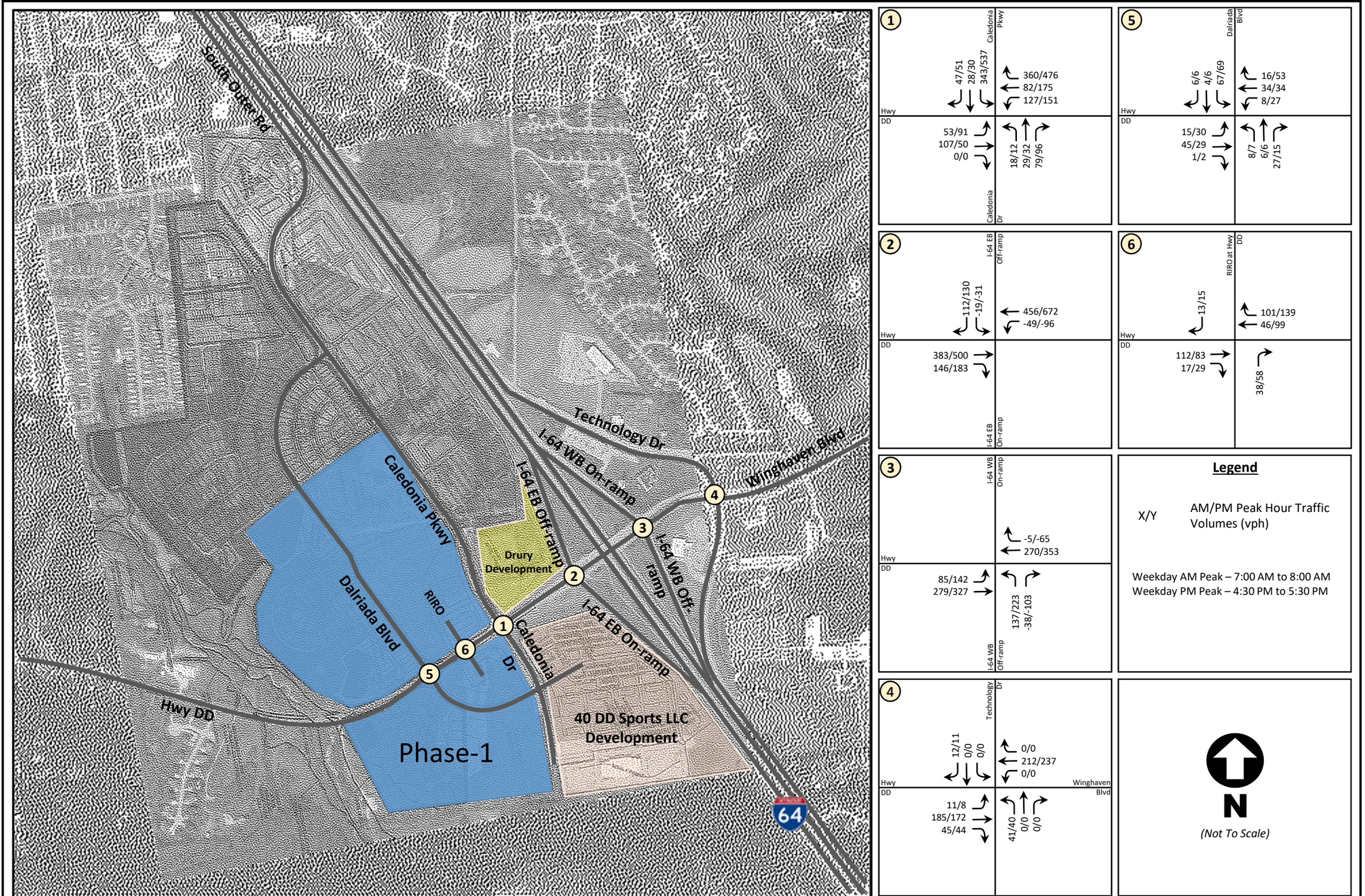
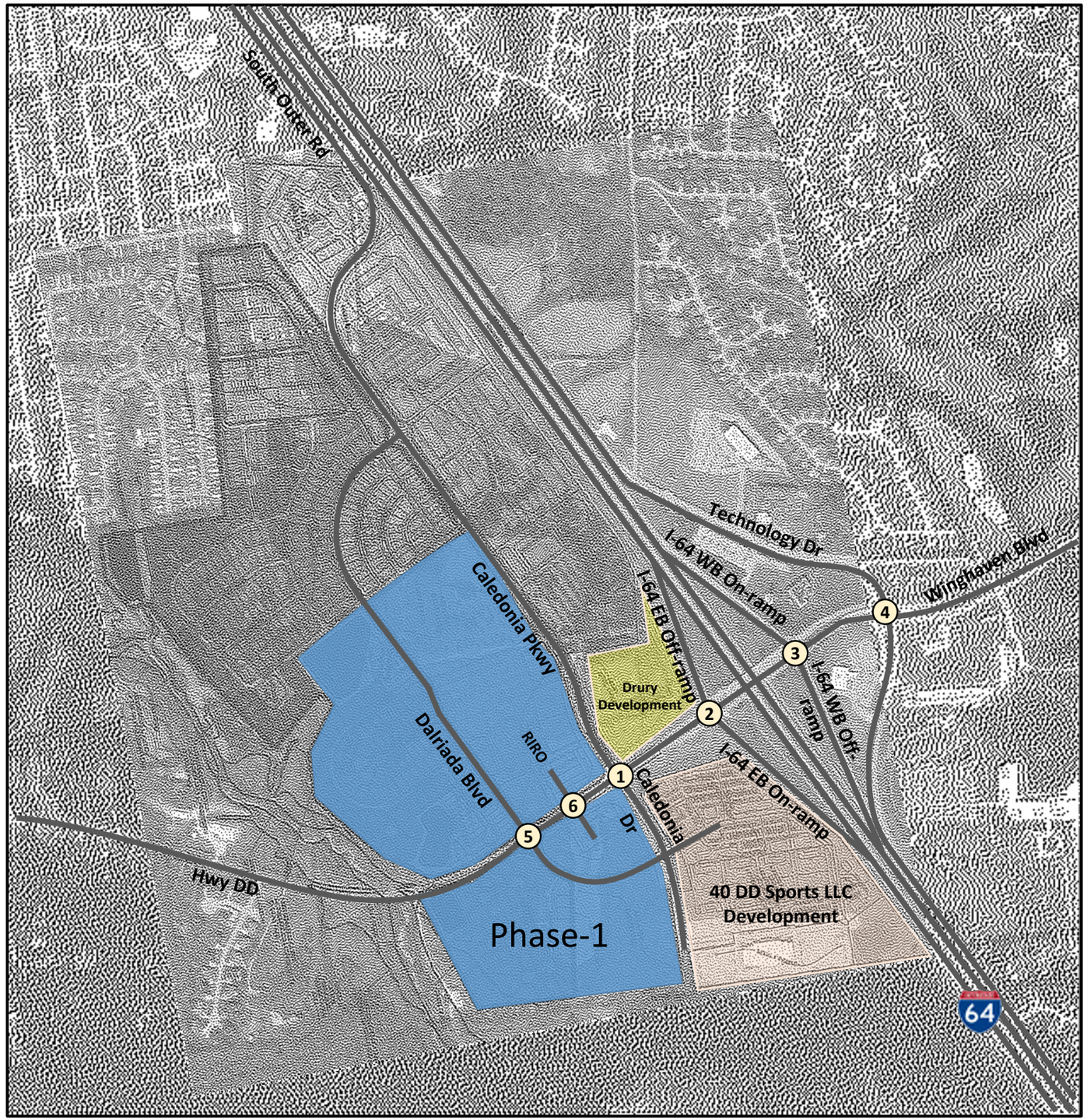


Exhibit 4: Phase-1 Site-Generated Traffic Volumes



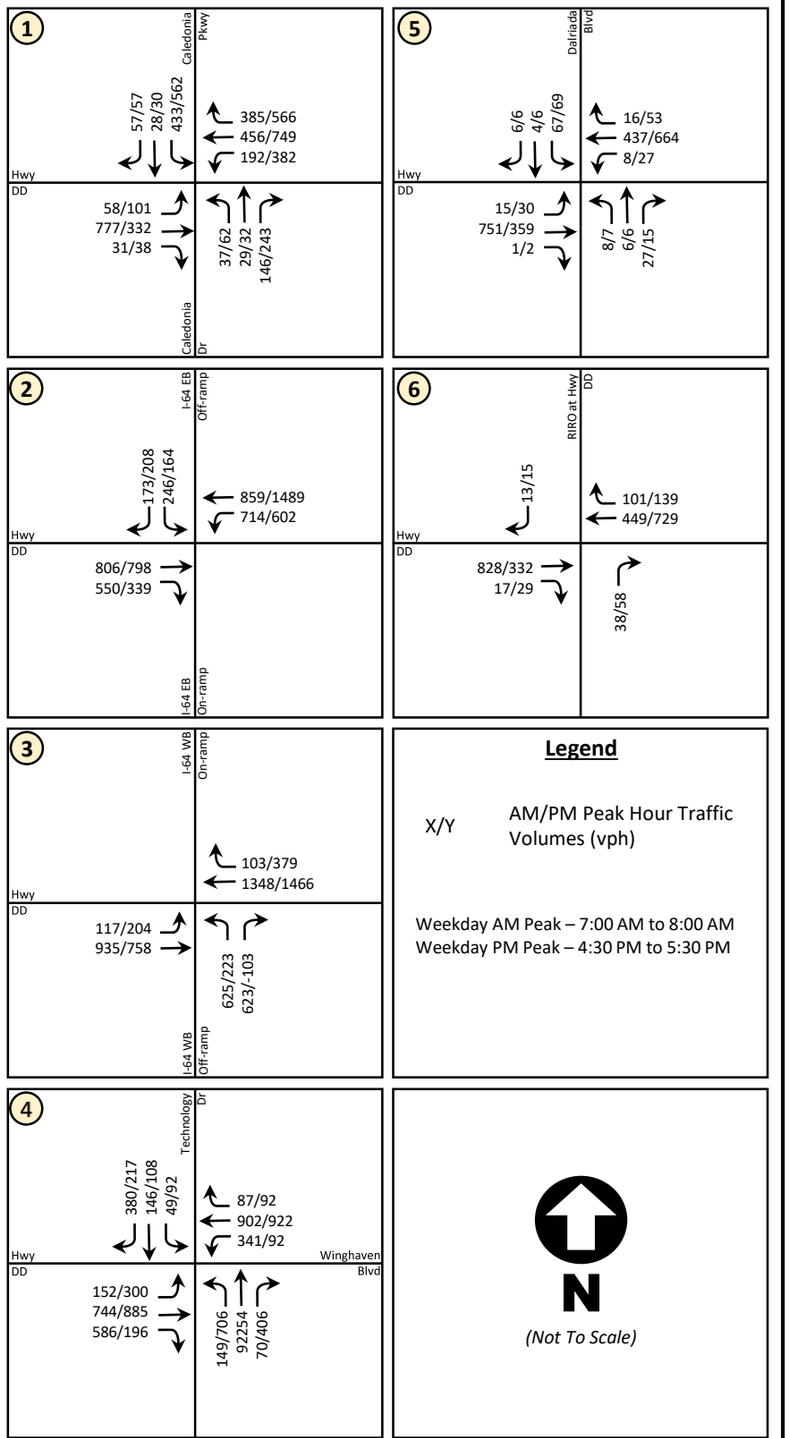


Exhibit 5: 2025 Build Traffic Volumes

Recommended Transportation Improvements

Based on the analysis of 2025 Build traffic volumes, the following transportation improvements are recommended to accommodate Phase 1 of the Streets of Caledonia and the Drury Development:

1. **Signalize the intersection of Highway DD with Caledonia Parkway/Caledonia Drive**. The signal should be interconnected and coordinated with adjacent signals along Highway DD at the I-64 interchange. Given the heavy volume of site-generated traffic expected on Caledonia Parkway, this intersection would easily satisfy warrants for signalization as summarized in **Appendix G**.

   The intersection's lane configuration should be as follows:

   - Westbound: Dual left-turn lanes, two through lanes, and one right-turn lane
   - Eastbound: One left-turn lane, one through lane, and one shared through/right-turn lane
   - Southbound: Dual left-turn lanes, one shared through/right-turn lane
   - Northbound: One left-turn lane, one through lane, and one right-turn lane

   The need for westbound dual left-turn lanes would be driven, in part, by traffic generated by the 40 DD Sports LLC development. Phase 1 of that development would generate 230 left-turns during the afternoon peak hour. Note that the westbound right-turn lane should extend back to the I-64 Eastbound Ramps.

   The left-turn signal phasing would be protected-only for the westbound and southbound movements, because both are dual-lane. The northbound and eastbound left-turns would be protected-plus-permissive, which allows yielding lefts on flashing yellow arrow. It would be also prudent to channelize the westbound right-turn movement due to heavy forecasted volumes and the southbound right-turn movement because of its shared lane configuration with through traffic.

2. **Construct a roundabout at Highway DD and Dalriada Boulevard**. Dalriada Boulevard would serve as the primary means of access to residential portions of the Streets of Caledonia. However, forecasted volumes would not warrant signalization per the Manual on Uniform Traffic Control Devices. That said, a heightened form of traffic control would be desired to safely accommodate left-turns, particularly southbound lefts which would include a moderate volume of traffic. Given the forecasted traffic, a roundabout would be an appropriate form of intersection control for this location.

   A single-lane roundabout is recommended with all approaches having a single entering lane, except for the westbound approach which should have a separate right-turn lane configured as either a by-pass lane or dedicated lane within the roundabout itself. This would represent the termination of the second westbound through lane on Highway DD.

Similarly, a second eastbound through lane should develop on Highway DD east of the roundabout heading towards Caledonia Parkway.

3. **Configure the proposed site access driveway on Highway DD between Caledonia Parkway and Dalriada Boulevard to Right-In Right-Out Only**. This access point would not satisfy MoDOT Access Management Guidelines for full access, which require a minimum of 660 feet of spacing from adjacent intersections. The proposed driveway would be less than 660 feet from both Caledonia Parkway and Dalriada Boulevard. Moreover, it would be safe and prudent to concentrate left-turning vehicles at the adjacent intersections, which would be signalized or configured as a roundabout.

   A westbound right-turn lane would be warranted on Highway DD at the proposed right-in right-out access driveway based on MoDOT's Access Management Guidelines. The warrants analysis is summarized in **Appendix H**. Conversely, an eastbound right-turn lane would not be warranted.

4. **Expand the capacity of the Highway DD intersection with the I-64 Eastbound Ramps by implementing the following improvements:**

   - Extend the existing eastbound right-turn lane on Highway DD (which measures about 200 feet in length) back to the intersection with Caledonia Parkway. Additional storage length would be required to accommodate anticipated queues during the morning peak hour. Note that this was recommended by the 40 DD Sports LLC Traffic Impact Study as a needed improvement to mitigate the impact of Phase 2 of that development.

   - Provide three through lanes on the eastbound approach to the intersection. The lanes should align opposite the three eastbound "receiving" lanes on the Highway DD overpass over I-64. As such, the left-most through lane would essentially be an extension of the left-turn lane to turn onto I-64 westbound. This lane should be developed within the median on Highway DD as an extended turn bay with 250 feet of storage length approaching the I-64 Eastbound Ramps . The remaining lanes would facilitate a consistent two through lanes on eastbound Highway DD extending from Winghaven Boulevard back through Caledonia Parkway to Dalriada Boulevard.

   - Add a second westbound through lane on Highway DD at the intersection. This lane can be accommodated on the existing overpass over I-64 with pavement markings and striping. This would facilitate a consistent two through lanes on westbound Highway DD from Winghaven Boulevard through Caledonia Parkway to Dalriada Boulevard.

   - Provide a second left-turn lane on the I-64 Eastbound Off-Ramp. As previously indicated, this improvement is needed to mitigate an existing deficiency independent of future development. Therefore, this could be construed as the

responsibility of others and not the proposed Streets of Caledonia. However, it is a necessary improvement that is reflected in the 2025 Build scenario.

5. **Expand the capacity of the Highway DD intersection with the I-64 Westbound Ramps by implementing the following improvements:**
    - Add a second left-turn lane on the I-64 Westbound Off-Ramp. The need for this improvement is due to a significant increase in demand for the left-turn movement driven largely by the Streets of Caledonia development.
    - Expand the westbound Highway DD/Winghaven Boulevard approach to provide three through lanes at the intersection. The third lane would essentially be an extension of the left-turn lane to turn onto I-64 eastbound and should be developed within the median on Winghaven Boulevard as an extended turn bay with 300 feet of storage length. By providing additional left-turn storage for traffic destined for I-64 eastbound, this lane would help accommodate traffic generated by the Streets of Caledonia in the through lanes.
6. **Convert the eastbound left-turn movement on Winghaven Boulevard at Technology Drive/MasterCard Boulevard to dual left-turn lanes**. This movement's volume would not be materially affected by the proposed development, and thus the Streets of Caledonia would not directly benefit from the increased left-turn capacity. However, the Streets of Caledonia would increase traffic at the intersection, particularly for the through movements along Winghaven Boulevard. This improvement represents the most cost-effective opportunity to increase the intersection's capacity to mitigate the impact of the through traffic. The pavement and signal mast arm are presently configured for dual eastbound left-turn lanes. Implementation would consist of pavement markings and the addition of a second signal head on the existing mast arm.

The preceding improvements prescribed to accommodate Phase 1 of the Streets of Caledonia are conceptually depicted in **Exhibit 6**.

Forecasted Operating Conditions

Assuming the implementation of the preceding transportation improvement recommendations, forecasted operating conditions, summarized in **Table 6**, were analyzed using the common operational methodology applied to all scenarios as summarized in **Appendix C**. Note that lane utilization factors and origin-destination volume balancing was applied at the Highway DD/Winghaven Boulevard interchange with I-64 to maximize the accuracy of the delay and queuing performance measures output from the analysis.

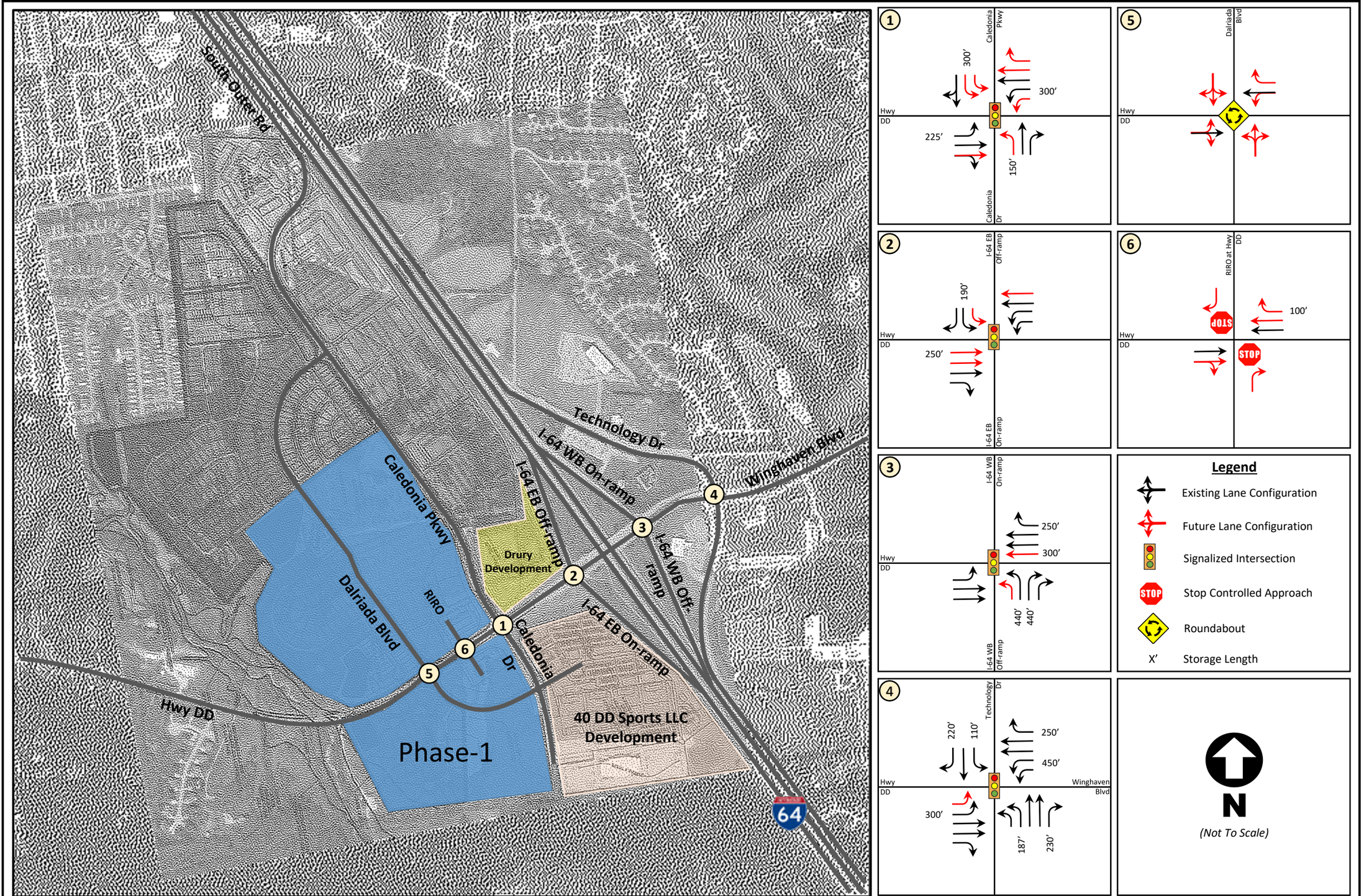


Exhibit 6: Recommended Lane Configuration Phase 1 Streets of Caledonia

Table 6: 2025 Build Operating Conditions

Int #	Intersection/Approach	AM Peak Hour			PM Peak Hour		
		LOS	Delay (sec/veh)	95th % Queue (ft)	LOS	Delay (sec/veh)	95th % Queue (ft)
1	***Highway DD @ Caledonia Drive/Caledonia Pkwy (Signalized)***						
	Overall Intersection	**C**	**21.8**	-	**C**	**25.8**	-
	Eastbound Approach	C	22.9	301 T	C	24.5	173 T
	Westbound Approach	B	15.5	139 T	B	18.7	300 T
	Northbound Approach	B	11.1	46 T	C	25.7	155 RT
	Southbound Approach	D	36.9	177 LT	D	45.1	265 LT
2	***Highway DD @ I-64 Eastbound Ramps (Signalized)***						
	Overall Intersection	**C**	**24.7**	-	**B**	**10.6**	-
	Eastbound Approach	B	19.6	326 T	B	12.5	342 T
	Westbound Approach	C	26.0	#330 LT	A	3.2	m119 LT
	I-64 EB Off-Ramp	C	33.9	104 LT	D	45.6	179 RT
3	***Highway DD/Winghaven Boulevard @ I-64 Westbound Ramps (Signalized)***						
	Overall Intersection	**B**	**26.3**	-	**C**	**26.4**	-
	Eastbound Approach	B	14.3	148 T	C	31.6	386 T
	Westbound Approach	C	28.2	339 T	B	16.3	430 T
	I-64 WB Off-Ramp	D	37.7	#190 RT	D	37.7	306 LT
4	***Winghaven Boulevard @ Technology Drive/MasterCard Boulevard (Signalized)***						
	Overall Intersection	**C**	**29.7**	-	**C**	**34.8**	-
	Eastbound Approach	C	26.5	m257 T	C	20.2	220 T
	Westbound Approach	C	32.1	344 T	D	42.0	#492 T
	Northbound Approach	C	33.4	75 LT	D	40.9	#383 LT
	Southbound Approach	C	30.4	#184 RT	D	42.4	#179 T
5	***Highway DD @ Dalriada Boulevard (Roundabout)***						
	Overall Intersection	**A**	**1.7**	-	**A**	**1.5**	-
	Eastbound Approach	A	1.7	276 LT/T/RT	A	1.3	75 LT/T/RT
	Westbound Approach	A	0.1	64 LT/T	A	0.4	130 LT/T
	Northbound Approach	A	9.5	16 LT/T/RT	A	4.9	5 LT/T/RT
	Southbound Approach	A	7.9	15 LT/T/RT	B	10.6	22 LT/T/RT
6	***Highway DD @ Commercial RIRO (Unsignalized, Side Street STOP Control)***						

	Northbound Approach	B	12.1	5 RT	B	10.2	8 RT
	Southbound Approach	A	9.8	3 RT	B	11.1	3 RT

LT/T/RT - Maximum queue on left turn (LT)/through (T)/ right turn (RT) movement
- 95th percentile volume exceeds capacity, queue may be longer; queue shown is maximum after two cycles
m - volume for the 95th percentile queue is metered by the upstream signal

As shown, the intersections along Highway DD/Winghaven Boulevard would operate favorably during the peak hours at LOS C or better overall. The intersection of Highway DD and the I-64 Eastbound Ramps would improve from LOS D to LOS C overall during the morning peak hour as a result of additional capacity, particularly the second left-turn lane on the eastbound off-ramp approach. Similarly, the intersection of Winghaven Boulevard and Technology Drive/MasterCard Boulevard would benefit from dual eastbound left-turn lanes, such that the overall level of service would improve from LOS D to LOS C during the afternoon peak hour.

While some intersections would experience longer queues as a result of heavier traffic in the 2025 Build condition, all queues along Highway DD/Winghaven Boulevard would be contained and not spillback into adjacent intersections. This includes the closely-spaced I-64 ramp terminal intersections and the segment between the signalized intersection at Caledonia Parkway and the roundabout at Dalriada Boulevard. The signal would not cause traffic to backup into the roundabout.

The proposed signalized intersection at Highway DD and Caledonia Parkway would operate at LOS C overall during both the morning and afternoon peak hours. The southbound approach would operate at LOS D due to the heavy volume of left-turning traffic exiting the site, but LOS D is acceptable for peak period operations and left-turn queues would be contained within a 300-foot storage bay.

The proposed roundabout at Highway DD and Dalriada Boulevard would operate very efficiently at LOS A during both peak hours. In fact, each intersection approach would operate at LOS B or better, indicating ample capacity to accommodate forecasted traffic.

Overall, it can be concluded that the prescribed transportation improvements for the 2025 Build scenario would accommodate the traffic generation of Phase 1 of the Streets of Caledonia and effectively mitigate any adverse impacts. In fact, the recommended improvements would enable some intersections to operate more effectively as compared to the No Build condition, despite heavier traffic volumes due to the proposed development.

2045 NO BUILD SCENARIO

A 2045 No Build scenario was developed to serve as a benchmark of long-term conditions without the proposed development from which to compare Build conditions including full build-out of the Streets of Caledonia.

Assumed Transportation Improvements

It was assumed that the Horner & Shifrin concept for one-way outer roads along I-64 would be in place by 2045. Therefore, this concept was reflected in the 2045 No Build transportation system configuration, as conceptually illustrated in **Appendix J**.

Specifically, the Horner & Shifrin concept would construct a new one-way outer road along the south side of I-64 adjacent to the Streets of Caledonia site frontage. With this concept, eastbound I-64 traffic destined to Highway DD/Winghaven Boulevard would actually exit onto the one-way outer road via a new slip ramp located midway between Highway DD/Winghaven Boulevard and the Highway N overpass.

The existing two-way I-64 South Outer Road would 'T' into the one-way outer road (with right-in right-out access) shortly after the new slip off ramp. Additionally, a new slip ramp onto eastbound I-64 would be provided from the one-way outer road prior to Highway DD/Winghaven Boulevard, and a Texas U-turn movement would be provided on the Highway DD overpass to facilitate eastbound to westbound U-turns.

The impact of this concept upon forecasted traffic volumes was determined by combining the Horner & Shifrin traffic projections (summarized in **Appendix K**) with the Caledonia Parkway cut-through traffic projections determined from the St. Charles County Regional Travel Demand Model. The one-way outer road would provide a southbound connection from Highway N to Highway DD similar to Caledonia Parkway.

With the Streets of Caledonia development not in place for the 2045 No Build condition, the southbound cut-through volume forecasted for 2025 was shifted to the one-way outer road and increased to reflect 20 years of background growth. Then it was combined with the Horner & Shifrin forecasts for the new slip ramps and Texas U-turn to create a complete volume set for the concept for the 2045 No Build scenario.

Forecasted Traffic Volumes

2045 No Build traffic volumes summarized in **Exhibit 7** reflect 2025 No Build traffic volumes aggregated with the following:

- Phase 2 of the 40 DD Sports LLC development;
- 20 years of background traffic growth at 1 percent annually (see **Appendix F**); and
- Revised traffic patterns due to implementation of the Horner & Shifrin one-way outer road concept, as described in the preceding section.

The 40 DD Sports LLC Phase 2 trip generation, summarized in **Table 7**, was obtained from that development's approved Traffic Impact Study.

Table 7: 40 DD Sports LLC Phase 2 Trip Generation Forecast

Land Use (ITE Code)	Units	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
High-turnover (Sit-down) Restaurant (932)	6,500 SF	0	0	0	40	25	65
Hotel (310)	85 Rooms	30	20	20	10	20	30
Medical/Dental Office	8,000 SF	15	5	20	10	20	30
Coffee/Donut Shop with Drive-Thru (937)	2,500 SF	125	125	250	55	55	110
General Office Building (710)	12,000 SF	15	5	20	5	15	20
Common Trips (0%,30%, 35%)		*(20)*	*(15)*	*(35)*	*(40)*	*(40)*	*(80)*
Subtotal		**165**	**140**	**305**	**95**	**100**	**195**
Pass-by/Diverted Link Trips		*95*	*95*	*190*	*40*	*40*	*80*
New Trips		**70**	**45**	**115**	**55**	**60**	**115**

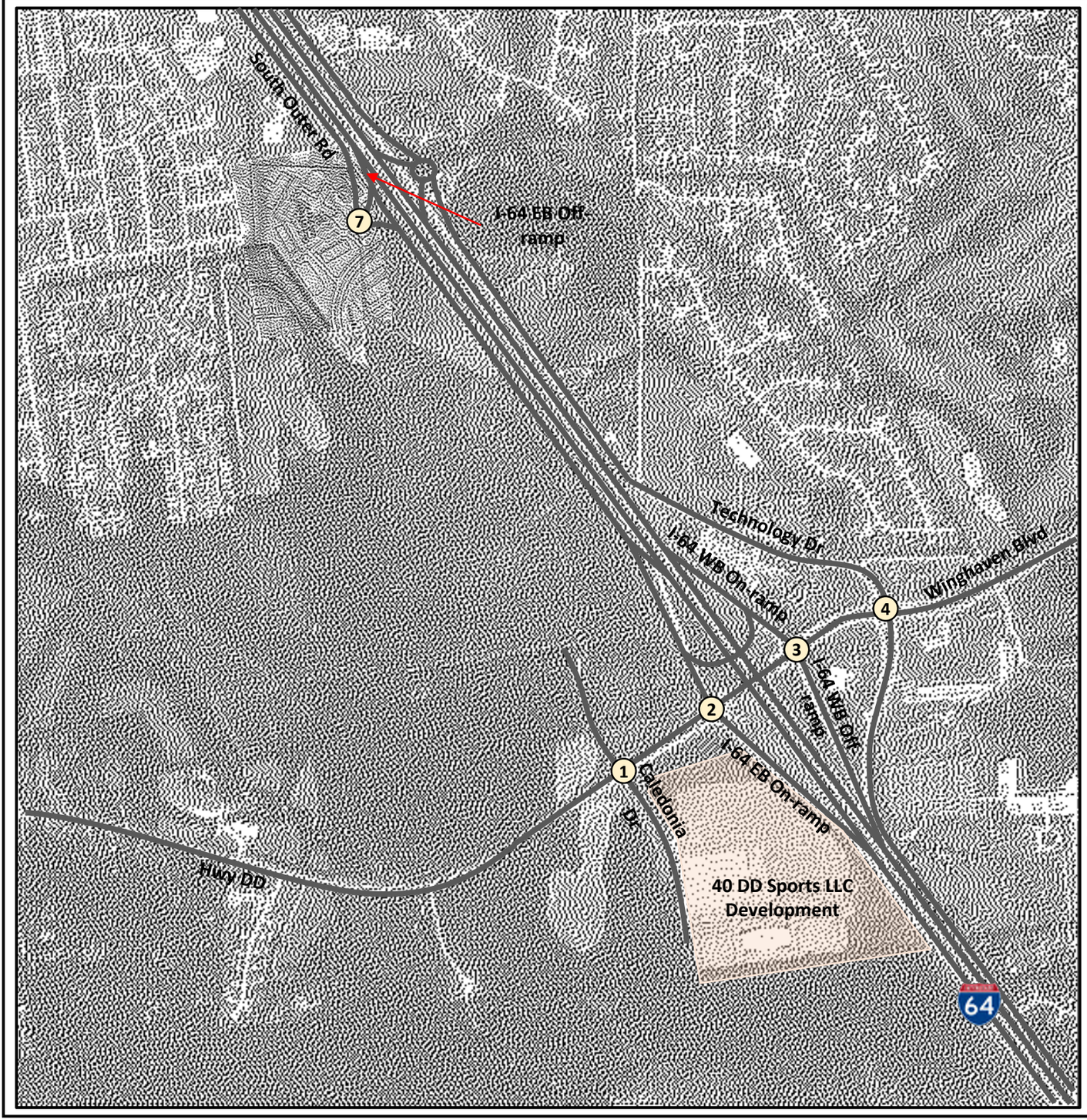
Forecasted Operating Conditions

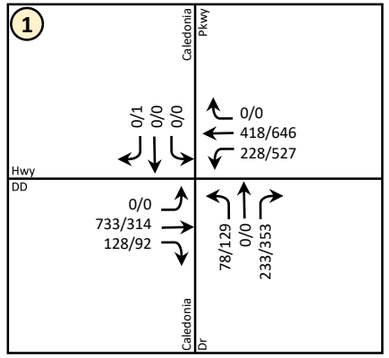
2045 No Build operating conditions, summarized in **Table 8**, were analyzed using the common operational methodology applied to all scenarios and summarized in **Appendix C**.

As shown, the 40 DD Sports LLC Phase 2 trips and background traffic growth would cause operating conditions to deteriorate at the study area intersections by 2045. Specifically, the intersection of Winghaven Boulevard with Technology Drive/MasterCard Boulevard would operate at LOS E overall during the afternoon peak hour with 3 of 4 approaches at LOS E. 95th percentile queue lengths would exceed 500 feet on 3 of 4 approaches.

Similarly, the ramp terminal intersections at the Highway DD/Winghaven Boulevard interchange with I-64 would become constrained during the morning peak hour. Both the eastbound and westbound I-64 off-ramp approaches would operate at LOS F, as the off-ramp capacities (single left-turn lane for both ramps) would be inadequate for anticipated volumes.

Assuming it would remain unsignalized and configured as it exists today, the intersection of Highway DD with Caledonia Drive would be adversely impacted by full build-out of the 40 DD Sports LLC development. The northbound approach on Caledonia Drive would operate at LOS F during both peak hours, as there would be insufficient gaps in traffic on Highway DD for vehicles to safely turn off of Caledonia Drive. In fact, the 40 DD Sports LLC Traffic Impact Study recommends the intersection be signalized to accommodate Phase 2 of the development. This finding is confirmed by the analysis results in **Table 8**.





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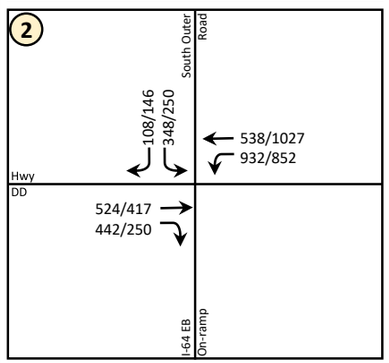

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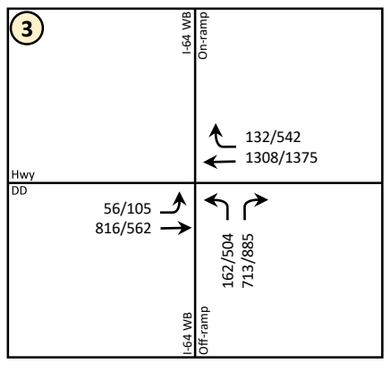
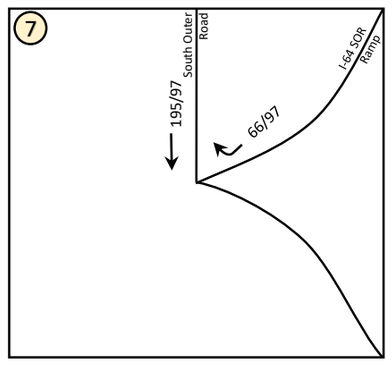
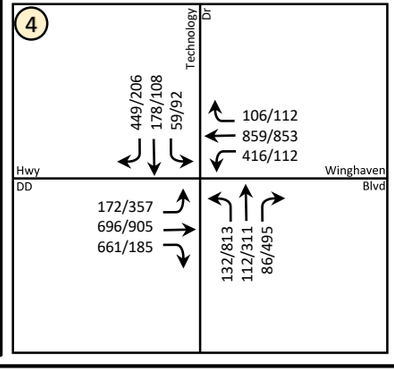




Legend

X/Y — AM/PM Peak Hour Traffic Volumes (vph)

Weekday AM Peak – 7:00 AM to 8:00 AM
Weekday PM Peak – 4:30 PM to 5:30 PM



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(Not To Scale)

Exhibit 7: 2045 No Build Traffic Volumes

Table 8: 2045 No Build Operating Conditions

Int #	Intersection/ Approach	AM Peak Hour			PM Peak Hour		
		LOS	Delay (sec/veh)	95th % Queue (ft)	LOS	Delay (sec/veh)	95th % Queue (ft)
1	***Highway DD @ Caledonia Drive (Unsignalized, Side Street STOP Control)***						
	Overall Intersection	-	-	-	-	-	-
	Eastbound Left-turn	A	0.0	0	A	0.0	0
	Westbound Left-turn	B	11.2	33 LT	A	4.7	65 LT
	Northbound Approach	**F**	**147.7**	**203 LT**	**F**	**>200**	**455 LT**
	Southbound Approach	A	0.0	0	B	13.2	0
2	***Highway DD @ I-64 Eastbound Ramps (Signalized)***						
	Overall Intersection	**D**	**50.3**	-	**C**	**32.3**	-
	Eastbound Approach	E	73.2	#570 T	D	46.5	#514 T
	Westbound Approach	B	12.3	256 LT	C	24.9	m583 T
	I-64 EB Off-Ramp	**F**	**124**	**#429 LT**	D	43.6	270 LT
3	***Highway DD/Winghaven Boulevard @ I-64 Westbound Ramps (Signalized)***						
	Overall Intersection	**C**	**29.5**	-	**C**	**24.6**	-
	Eastbound Approach	A	4.5	m30 LT	B	19.4	m160 T
	Westbound Approach	A	7.1	173 T	A	7.1	m230 T
	I-64 WB Off-Ramp	**F**	**91.2**	**#267 RT**	D	51.2	#652 LT
4	***Winghaven Boulevard @ Technology Drive/MasterCard Boulevard (Signalized)***						
	Overall Intersection	**C**	**33.6**	-	**E**	**57.6**	-
	Eastbound Approach	C	34.4	m#322 RT	D	48.9	#753 LT
	Westbound Approach	D	35.8	#383 T	**E**	**65.3**	**#695 T**
	Northbound Approach	C	29.1	69 LT	**E**	**57.6**	**#505 LT**
	Southbound Approach	C	29.4	#199 RT	**E**	**69.6**	**#243 T**

LT/T/RT - Maximum queue on left turn (LT)/through (T)/ right turn (RT) movement
- 95th percentile volume exceeds capacity, queue may be longer; queue shown is maximum after two cycles
m - volume for the 95th percentile queue is metered by the upstream signal

2045 BUILD SCENARIO

The 2045 Build scenario was developed to evaluate full build-out of the Streets of Caledonia. This scenario incorporates the 2045 No Build conditions plus completion of the proposed development. This allows differences between the No Build and Build conditions to be attributable to the Streets of Caledonia and additional mitigation improvements beyond those identified for Phase 1 were prescribed.

Forecasted Traffic Volumes

Traffic forecasted for the 2045 Build scenario reflects the 2045 No Build scenario plus full build-out of the Streets of Caledonia, including development of the Drury site. The trip generation methodology, including the referenced common trip and pass-by/diverted trip percentages, is summarized in **Appendix D**.

Full build-out of the Streets of Caledonia reflects the following uses:

- 377 Single-Family Homes
- 82 Neo-Traditional Homes
- 205 Attached Townhomes
- 1.1M square feet of Office
- 146,500 square feet of Retail Space
- 13 Commercial Outlots assumed to develop as follows:
    - 1 Gas Station and C-store (12 vehicle fueling positions)
    - 4 Fast Food Restaurants (3,000 SF each)
    - 3 High-Turnover Sit-Down Restaurants (7,000 SF each)
    - 2 Banks with Drive-Thru (4,500 SF each)
    - 2 Retail Outlots (5,000 SF each)
    - 1 Pharmacy with Drive-Thru (11,725 SF)

In addition, the Drury Development reflects the following uses:

- 200-room Hotel
- 1 High-Turnover Sit-Down Restaurant (9,000 SF)
- Retail with 24,000 SF

The trip generation forecast for full build-out of the Streets of Caledonia and the Drury Development is summarized in **Table 9**. The proposed development at full build-out would generate a net total of approximately 2,811 and 3,445 external trips during the morning and afternoon peak hours, respectively. A portion of these trips would be common and pass-by/diverted in nature, so approximately 2,451 and 2,585 “new” trips would be generated during these respective peak hours.

Table 9: Streets of Caledonia Full Build-Out Trip Generation Forecast

	Land Use	ITE Code	Size	Unit	AM Peak Hour			PM Peak Hour		
					Total	IN	OUT	Total	IN	OUT
North of Hwy DD	Single Family Home	210	391	Units	290	75	215	390	250	140
	Townhouse	210	205	Units	150	40	110	200	125	75
	Retail	820	156.5	KSF	230	145	85	755	360	395
	Gasoline/Service Station With Convenience Market	945	12	VFP	150	75	75	170	85	85
	Fast-Food Restaurant with Drive-Through Window	934	6	KSF	240	120	120	195	100	95
	High-Turnover (Sit-Down) Restaurant	932	21	KSF	210	115	95	205	125	80
	Drive-in Bank	912	4.5	KSF	45	25	20	90	45	45
	Drury Hotel	310	200	room	95	55	40	125	65	60
	Drury High-Turnover (Sit-Down) Restaurant	932	9	KSF	90	50	40	90	55	35
	Drury Retail	820	24	KSF	165	100	65	190	90	100
	Office	710	1,082.9	KSF	1070	920	150	1100	175	925
	Sub-total				**2735**	**1720**	**1015**	**3510**	**1475**	**2035**
	Common Trips				(314)	(180)	(134)	(540)	(265)	(275)
	Net Total Trips				**2421**	**1540**	**881**	**2970**	**1210**	**1760**
	Pass-by Trips				*230*	*115*	*115*	*670*	*335*	*335*
	New Trips				***2191***	***1425***	***766***	***2300***	***875***	***1425***
South of Hwy DD	Single Family Home	210	68	Units	60	15	45	70	45	25
	Pharmacy/Drugstore with Drive-Through Window	881	11.725	KSF	45	25	20	120	60	60
	Fast-Food Restaurant with Drive-Through Window	934	6	KSF	240	120	120	195	100	95
	Drive-in Bank	912	4.5	KSF	45	25	20	90	45	45
	Sub-total				**390**	**185**	**205**	**475**	**250**	**225**
	Pass-by Trips				*130*	*65*	*65*	*190*	*95*	*95*
	New Trips				***260***	***120***	***140***	***285***	***155***	***130***
Total for Phase 2	**Sub-total**				**3125**	**1905**	**1220**	**3985**	**1725**	**2260**
	Common Trips				(314)	(180)	(134)	(540)	(265)	(275)
	Net Total Trips				**2811**	**1725**	**1086**	**3445**	**1460**	**1985**
	Pass-by Trips				*360*	*180*	*180*	*860*	*430*	*430*
	New Trips				***2451***	***1545***	***906***	***2585***	***1030***	***1555***

The site-generated trips were assigned into and out of the proposed development based upon an anticipated direction distribution that was determined using guidance from the St. Charles County Travel Demand Model. The distribution percentages are summarized in **Table 10**.

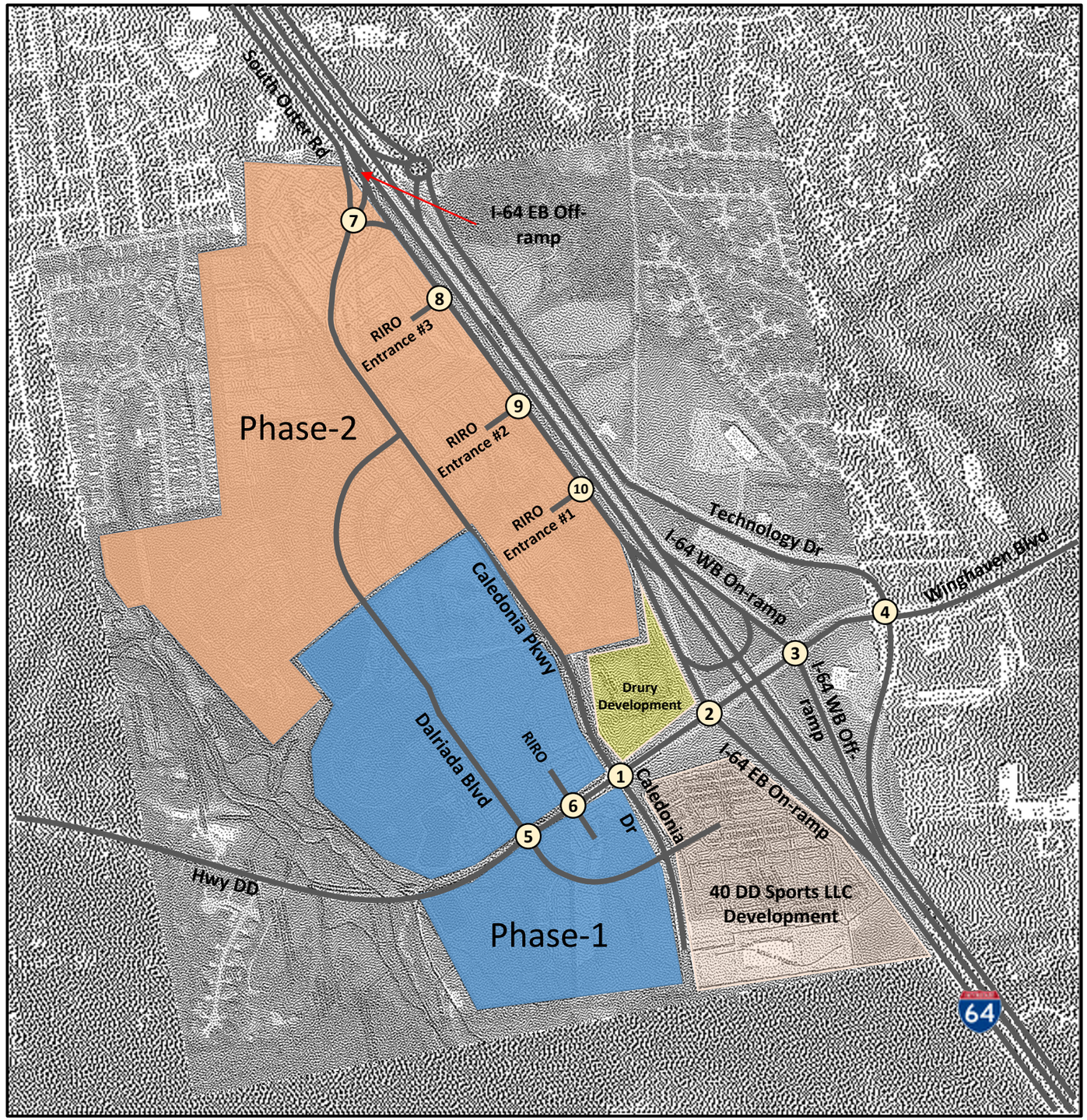
Table 10: Streets of Caledonia Full Build-Out Directional Distribution Percentages

Origin/Destination	Retail North of DD	Retail South of DD	Residential	Office
To/From I-64 East	15%	12%	34%	35%
To/From I-64 West	15%	12%	15%	20%
To/From East on Winghaven Boulevard	35%	28%	35%	34%
To/From North on Technology Drive	2%	1%	0%	0%
To/From South on MasterCard Boulevard	10%	8%	1%	1%
To/From West on Highway DD	10%	8%	5%	5%
To/From North on South Outer Road	6%	5%	10%	5%
Local Trips Across Highway DD	7%	26%	0%	0%

At full build-out, the Streets of Caledonia and Drury site-generated traffic volumes are illustrated in **Exhibit 8**. The assignment of the site-generated traffic reflects the Horner & Shifrin one-way outer road along I-64, as it was assumed the concept would be implemented by 2045. Site-generated traffic would be able to access the one-way outer road via Caledonia Parkway or multiple site access driveways directly onto the one-way outer road.

These connections would be particularly critical during the afternoon peak hour, as they would convey a heavy volume of traffic from the proposed development to I-64 eastbound (via new slip ramp), I-64 westbound (via the Texas U-turn), and Winghaven Boulevard. This access redundancy would significantly lessen the development's reliance on Highway DD and its signalized intersection with Caledonia Parkway to provide access for the site.

The site-generated traffic volumes were then aggregated with the 2045 No Build traffic volumes resulting in a 2045 Build traffic forecast summarized in **Exhibit 9**. The 2045 Build volumes also incorporate cut-through traffic on Caledonia Parkway traveling between Highway DD and the I-64 South Outer Road. However, a portion of the southbound trips would utilize the I-64 one-way outer road when traveling between Highway N and Highway DD, thereby lessening the southbound cut-through traffic on Caledonia Parkway (as compared to the 2025 Build scenario). This shift is reflected in the 2045 Build volumes.



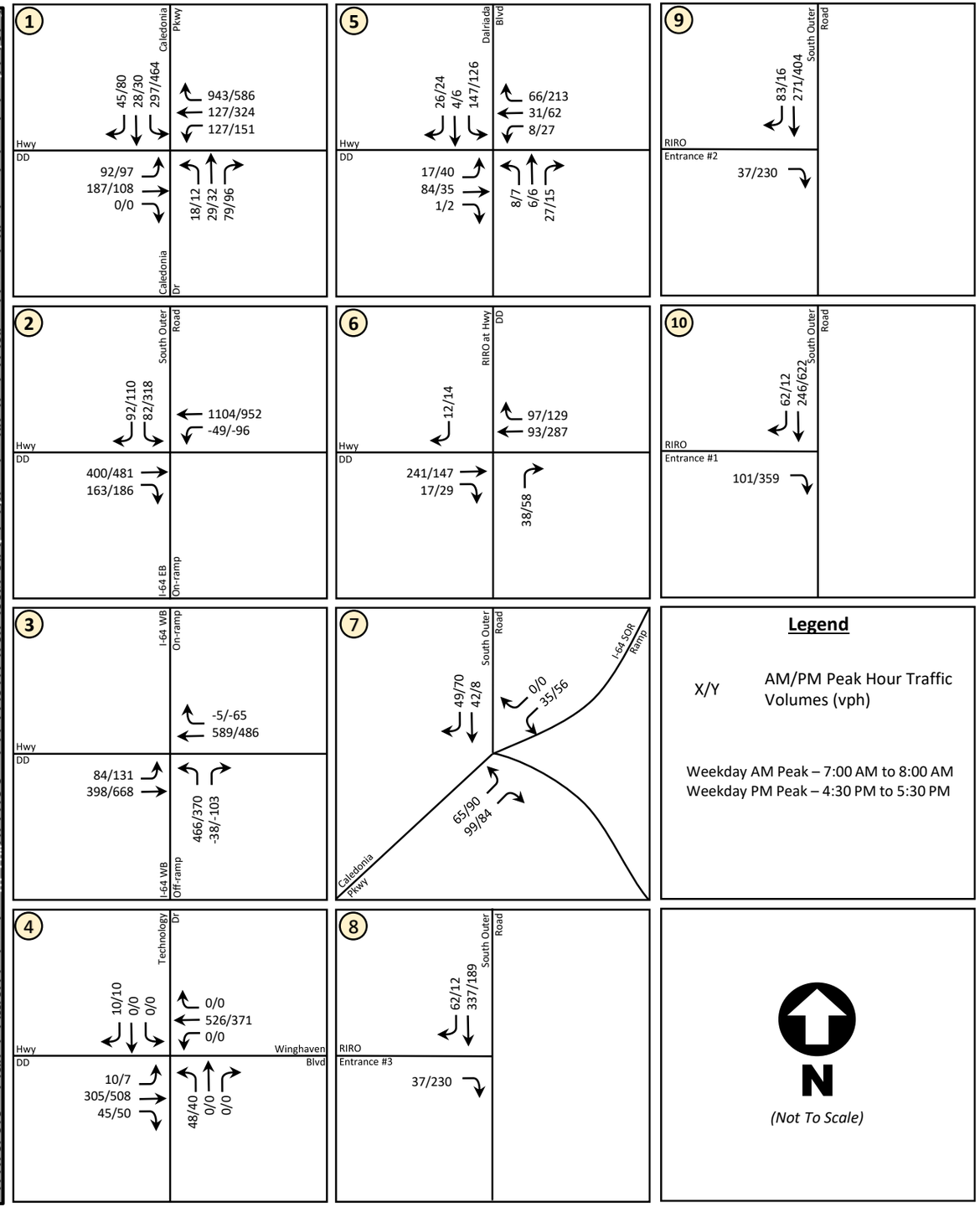
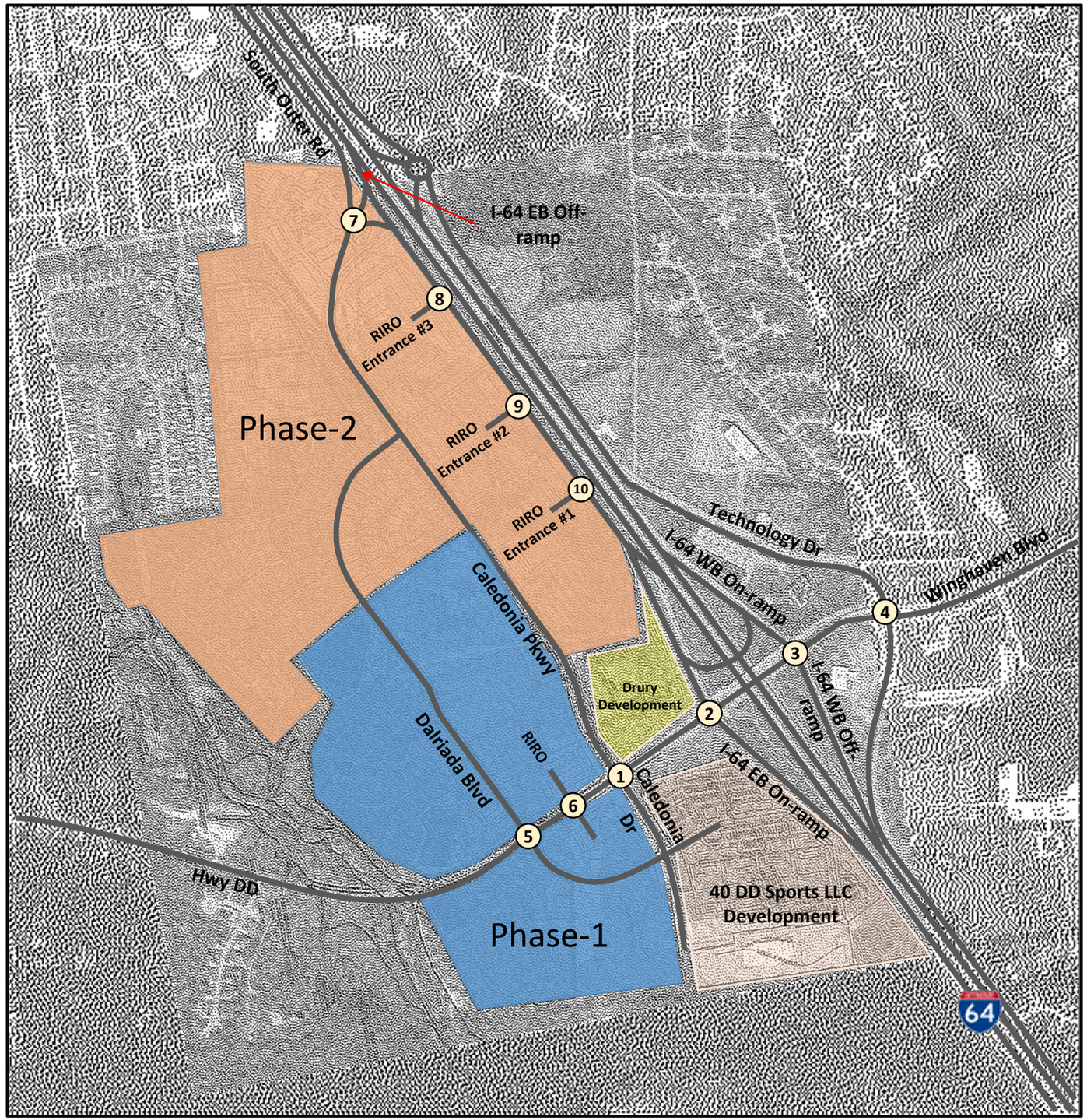


Exhibit 8: Full Build-Out Site Generated Traffic Volumes



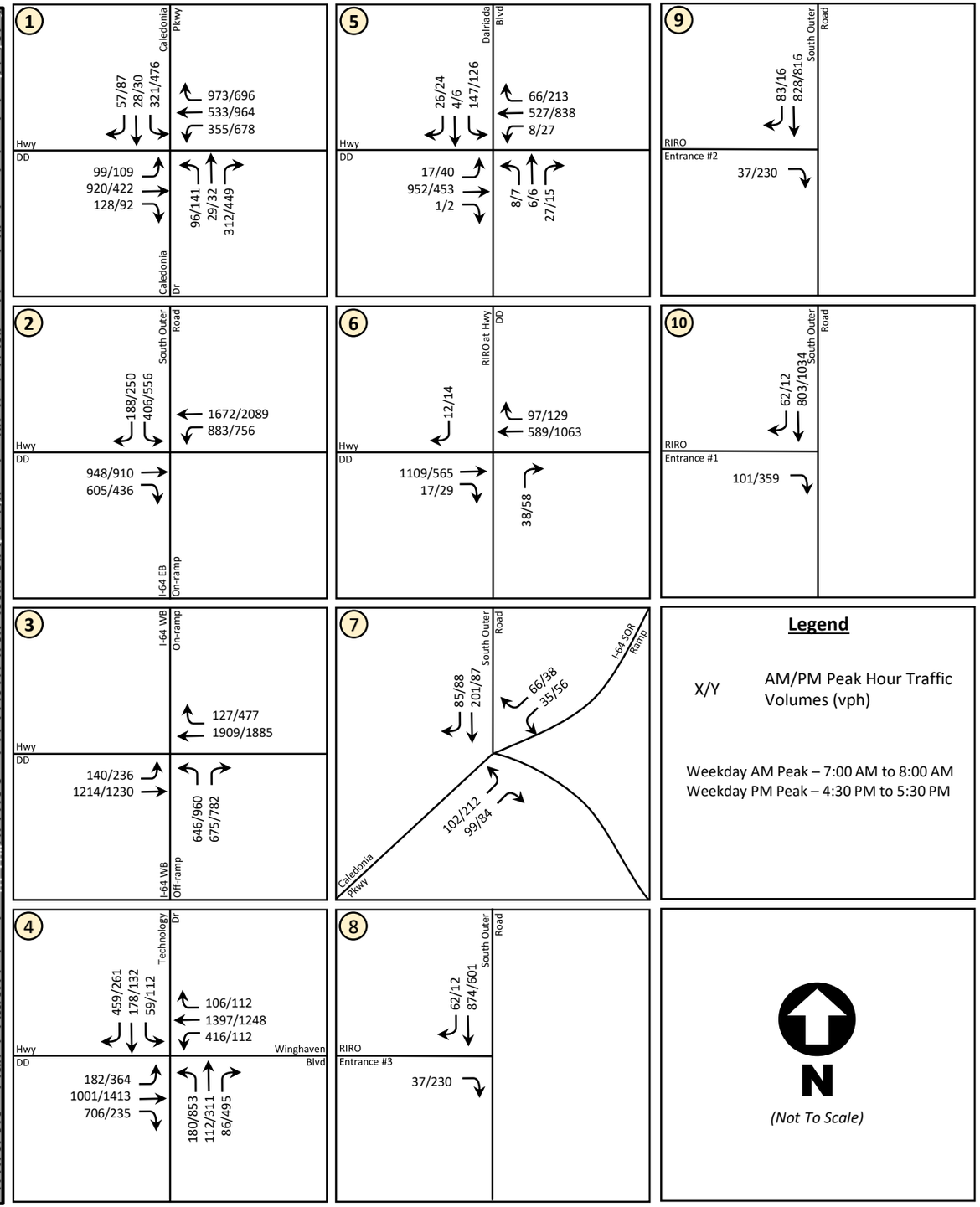


Exhibit 9: 2045 Build Traffic Volumes

Recommended Transportation Improvements

Based on an analysis of 2045 Build traffic volumes, the following transportation improvements are recommended to accommodate full build-out of the Streets of Caledonia and the Drury Development:

1. **Implement all transportation improvements previously recommended for the 2025 Build Scenario (Streets of Caledonia Phase 1 analysis)**.

2. **Add a dedicated eastbound right-turn lane at Highway DD and Caledonia Parkway/Caledonia Drive**. The addition of Phase 2 of the 40 DD Sports LLC development would increase the right-turn volume, triggering the need for a dedicated eastbound right-turn lane on Highway DD in accordance with MoDOT's Access Management Guidelines. The right-turn lane warrants analysis is summarized in **Appendix H**.

3. **Reconfigure the roundabout at Highway DD and Dalriada Boulevard to accommodate two eastbound and westbound through lanes in each direction on Highway DD.** The intersection's lane configuration should be as follows:

    - Westbound: One shared left-turn/through lane and one shared through/right-turn lane
    - Eastbound: One shared left-turn/through lane and one shared through/right-turn lane
    - Southbound: One combination left-turn/through/right-turn lane
    - Northbound: One combination left-turn/through/right-turn lane

    The roundabout should be configured as a "turbo-style" with two circulating lanes within the north and south portions of the roundabout but only one circulating lane within the east and west portions of the roundabout. Note the second westbound through lane on Highway DD would taper to a single lane downstream of the roundabout, as Highway DD reverts to one-way in each direction to the west. Similarly, the second eastbound through lane on Highway DD would develop in advance of the roundabout. The roundabout is conceptually depicted in **Figure 1**.

4. **Add a fourth westbound through lane on Winghaven Boulevard at the I-64 Westbound Ramps intersection.** The lanes should align opposite the four westbound "receiving" lanes on the Highway DD overpass over I-64. As such, the two left-most through lanes would essentially be an extension of the left-turn lane to turn onto I-64 eastbound. This lane should be developed within the median on Highway DD as an extended turn bay with 300 feet of storage length approaching the I-64 Eastbound Ramps intersection.

    Note that the 7 traffic lanes proposed for the Highway DD/Winghaven Boulevard overpass over I-64 would not preclude the addition of the Texas U-Turn movement identified as part of the Horner & Shifrin I-64 one-way outer roads concept. The overpass currently has over 125 feet of pavement width.

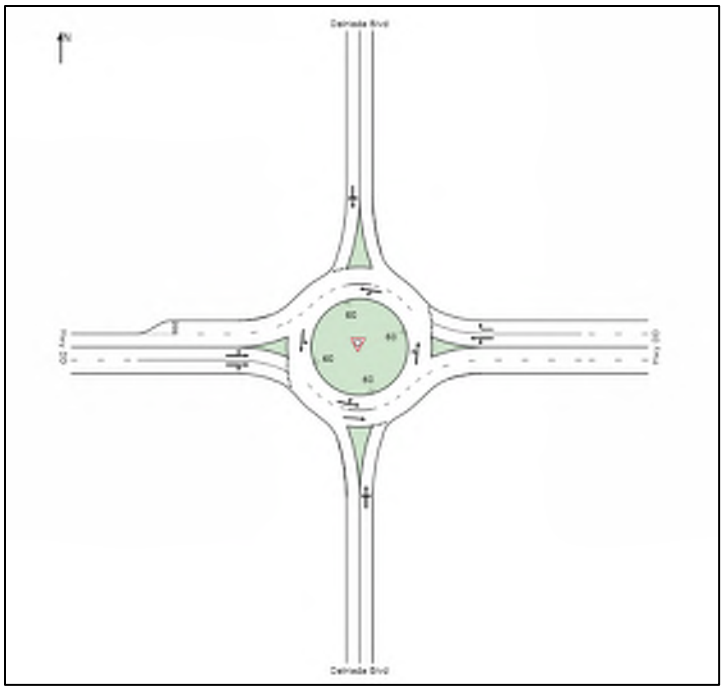


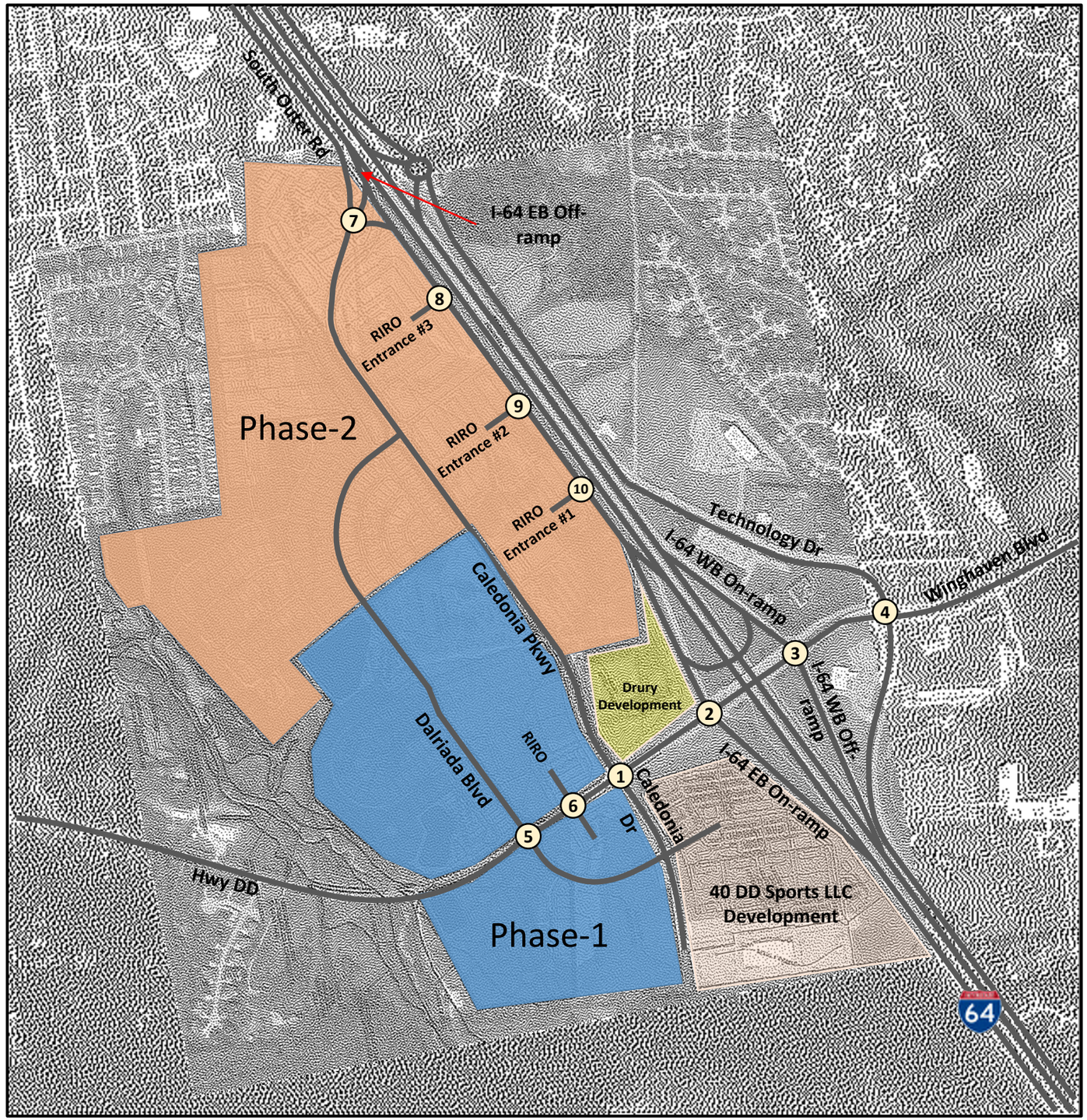
Figure 1: Recommended Roundabout Configuration Highway DD and Dalriada Boulevard

5. **Connect Caledonia Parkway to the existing two-way I-64 South Outer Road and the new I-64 one-way outer road with a roundabout.** The roundabout would provide for a single circulating lane and would have three legs: one for Caledonia Parkway, one for the existing two-way outer road, and one that includes both a right-in from the I-64 one-way outer road to the roundabout and right-out onto the one-way outer road from the roundabout.

6. **Provide direct access to the Streets of Caledonia along the proposed I-64 one-way outer road.** Approximately 3,000 feet of distance would exist along the one-way outer road between the right-out from the roundabout at Caledonia Parkway and the gore for the slip ramp onto eastbound I-64. MoDOT's Access Management Guidelines recommend a minimum of 660 feet of spacing between adjacent driveways along major roadway corridors, such as an interstate outer road. If the proposed access driveways were evenly spaced, the distance between driveways would average approximately 750 feet, which would be compliant with the guidelines. Therefore, a total of 3 access driveways would be feasible.

   As shown on the site plan, Right-In Right-Out Entrance #3 would be too close to right-out from Caledonia Parkway and Right-In Right-Out Entrance #1 would be too close to the slip ramp onto eastbound I-64. As the development plan solidifies for the office uses, the locations of these driveways should be optimized to maintain a minimum of 660 feet of spacing from adjacent driveways (measured centerline-to-centerline).

The preceding improvements prescribed to accommodate full build-out of the Streets of Caledonia are conceptually depicted in **Exhibit 10**.



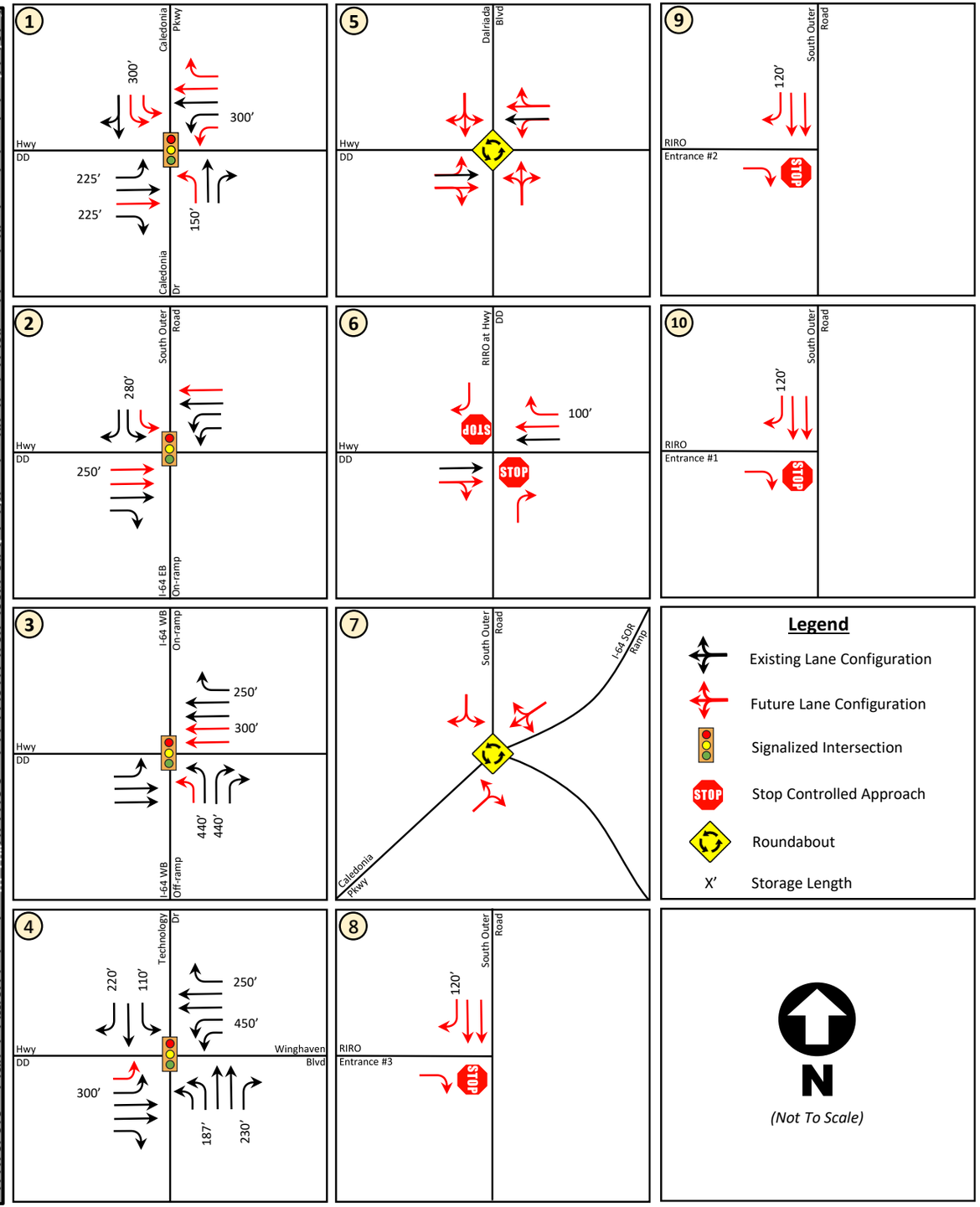


Exhibit 10: Recommended Lane Configuration Full Build-Out Streets of Caledonia

Forecasted Operating Conditions

2045 Build operating conditions, summarized in **Table 11**, were evaluated using the same methodologies applied previously in order to isolate the effect of the proposed development. The reported conditions reflect implementation of the preceding improvement recommendations.

As shown, the intersection of Highway DD at Caledonia Parkway would continue to operate favorably at LOS C overall during the peak hours. No approach to the intersection would operate below LOS D, and queues on the Highway DD approaches would not extend into adjacent intersections.

Similarly, the intersection at Highway DD and Dalriada Boulevard would benefit from the additional eastbound and westbound through lanes at the roundabout. The roundabout would operate very efficiently at LOS A overall during both peak hours with the Highway DD through traffic experiencing nominal delays traveling through the intersection.

The roundabout at the north end of the site where Caledonia Parkway would connect with the existing two-way I-64 South Outer Road and the new I-64 one-way outer road would operate efficiently as a single-lane roundabout. All approaches to the roundabout would operate at LOS A during both peak hours.

The Highway DD/Winghaven Boulevard interchange with I-64 would function at acceptable levels of service. In fact, the recommended improvements would substantially improve operating conditions at the ramp terminal intersections, as compared to the 2045 No Build scenario. The I-64 off-ramp approaches, which both would operate at LOS F during the morning peak hour under No Build conditions, would improve to LOS C/D. No intersection approach would operate below LOS D and both ramp terminals would operate favorably at LOS B or LOS C overall during the peak hours.

The intersection of Winghaven Boulevard with Technology Drive/MasterCard Boulevard would continue to be constrained during the afternoon peak hour under 2045 Build conditions, operating at LOS E overall. However, this would not represent a degradation from 2045 No Build conditions. In actuality, the overall intersection delay would improve by 3 seconds per vehicle as a result of signal timing improvements. While capacity improvements to this intersection would be warranted, they should not be construed as the responsibility of the Streets of Caledonia, given the absence of a measurable impact at this location.

Overall, it can be concluded that the prescribed transportation improvements for the 2045 Build scenario would accommodate the full traffic generation of the Streets of Caledonia and effectively mitigate any adverse impacts. In fact, the recommended improvements would substantially improve operations at some locations as compared to the 2045 No Build condition. All intersections and approaches would operate at LOS E or better.

Table 11: 2045 Build Operating Conditions

Int #	Intersection/ Approach	AM Peak Hour			PM Peak Hour		
		LOS	Delay (sec/veh)	95th % Queue (ft)	LOS	Delay (sec/veh)	95th % Queue (ft)
1	***Highway DD @ Caledonia Drive/Caledonia Pkwy (Signalized)***						
	Overall Intersection	**C**	**24.7**	-	**C**	**23.5**	-
	Eastbound Approach	C	24.4	#364 T	C	29.0	220 T
	Westbound Approach	C	24.7	#261 RT	B	13.7	m314 T
	Northbound Approach	B	17.7	125 RT	C	32.5	278 RT
	Southbound Approach	C	33.3	134 LT	D	46.9	241 LT
2	***Highway DD @ I-64 Eastbound Ramps (Signalized)***						
	Overall Intersection	**C**	**20.8**	-	**C**	**20.0**	-
	Eastbound Approach	C	22.2	#406 T	C	31.8	404 T
	Westbound Approach	B	15.3	#330 LT	A	5.6	538 LT
	I-64 EB Ramp	D	40.9	#188 LT	D	51.2	#288 LT
3	***Highway DD/Winghaven Boulevard @ I-64 Westbound Ramps (Signalized)***						
	Overall Intersection	**B**	**16.2**	-	**C**	**27.1**	-
	Eastbound Approach	B	10.1	m76 T	B	13.8	m#245 LT
	Westbound Approach	A	9.9	m160 T	C	20.8	m381 T
	I-64 WB Ramp	C	32.1	248 LT	D	46.7	#482 LT
4	***Winghaven Boulevard @ Technology Drive/MasterCard Boulevard (Signalized)***						
	Overall Intersection	**D**	**43.9**	-	**E**	**60.3**	-
	Eastbound Approach	C	28.7	368 T	**E**	**56.0**	**209 T**
	Westbound Approach	D	52.7	#592 T	**E**	**69.5**	**#492 T**
	Northbound Approach	D	37.3	#99 LT	**E**	**57.6**	**#383 LT**
	Southbound Approach	**E**	**64.1**	**#384 RT**	**E**	**59.0**	**#179 T**
5	***Highway DD @ Dalriada Boulevard (Roundabout)***						
	Overall Intersection	**A**	**1.9**	-	**A**	**2.5**	-
	Eastbound Approach	A	1.3	91 LT/T/RT	A	1.3	38 LT/T/RT
	Westbound Approach	A	0.3	83 LT/T/RT	A	1.0	219 LT/T/RT
	Northbound Approach	A	7.2	10 LT/T/RT	A	5.0	5 LT/T/RT
	Southbound Approach	A	9.2	40 LT/T/RT	C	16.6	71 LT/T/RT
6	***Highway DD @ Commercial RIRO (Unsignalized, Side Street STOP Control)***						

	Northbound Approach	B	14.1	8 RT	B	10.9	8 RT
	Southbound Approach	B	10.4	3 RT	B	13.1	3 RT
7	***South Outer Road/I-64 EB Off-ramp @ Caledonia Parkway (Roundabout)***						
	Overall Intersection	**A**	**4.3**	**-**	**A**	**4.3**	**-**
	Northbound Approach (Caledonia Pkwy)	A	5.3	36	A	4.9	52
	Southbound Approach (SOR)	A	4.1	48	A	3.5	27
	Westbound Approach (I-64 EB off-ramp)	A	2.8	16	A	3.5	16
8	***South Outer Road @ RIRO #3 (Unsignalized, Side Street STOP Control)***						
	Eastbound Approach	B	12.3	5 RT	B	13.6	43 RT
9	***South Outer Road @ RIRO #2 (Unsignalized, Side Street STOP Control)***						
	Eastbound Approach	B	12.0	5 RT	C	16.5	58 RT
10	***South Outer Road @ RIRO #1 (Unsignalized, Side Street STOP Control)***						
	Eastbound Approach	B	12.9	18 RT	**E**	**37.2**	**188 RT**

LT/T/RT - Maximum queue on left turn (LT)/through (T)/ right turn (RT) movement
- 95th percentile volume exceeds capacity, queue may be longer; queue shown is maximum after two cycles
m - volume for the 95th percentile queue is metered by the upstream signal

CONCLUSION

Lochmueller Group prepared the preceding traffic impact study for the proposed Streets of Caledonia in O'Fallon, Missouri. The 260-acre multi-use development would be located at Interstate 64 (I-64) and Missouri Highway DD/Winghaven Boulevard.

The development would be phased with a portion being complete by 2025. However, full built-out is not be expected until beyond 2030. Phase 1 was assumed to include all retail and restaurant uses along with a portion of the residential development. In total, 157 homes and approximately 220,000 square feet (SF) of retail are reflected in Phase 1. Full-build out (2045) would include the remaining residential development plus nearly 1.1 million SF of office space.

The purpose of this study was to identify how much traffic would be generated by the proposed development; evaluate the impacts of the additional traffic upon the existing public road network; and recommend improvements to accommodate the site's traffic and mitigate any impacts.

The following transportation improvements are recommended to accommodate Phase 1 of the Streets of Caledonia and the Drury Development:

1. **Signalize the intersection of Highway DD with Caledonia Parkway/Caledonia Drive.** The intersection's lane configuration should be as follows:
    - Westbound: Dual left-turn lanes, two through lanes, and one right-turn lane
    - Eastbound: One left-turn lane, one through lane, and one shared through/right-turn lane
    - Southbound: Dual left-turn lanes, one shared through/right-turn lane
    - Northbound: One left-turn lane, one through lane, and one right-turn lane

    The need for westbound dual left-turn lanes would be driven, in part, by traffic generated by the 40 DD Sports LLC development. Phase 1 of that development would generate 230 left-turns during the afternoon peak hour. Note that the westbound right-turn lane should extend back to the I-64 Eastbound Ramps.

2. **Construct a roundabout at Highway DD and Dalriada Boulevard.** A single-lane roundabout is recommended with all approaches having a single entering lane, except for the westbound approach which should have a separate right-turn lane configured as either a by-pass lane or dedicated lane within the roundabout itself.

3. **Configure the proposed site access driveway on Highway DD between Caledonia Parkway and Dalriada Boulevard to Right-In Right-Out Only.** A westbound right-turn lane would be warranted on Highway DD at the proposed right-in right-out access driveway, whereas an eastbound right-turn lane would not be warranted.

4. **Expand the capacity of the Highway DD intersection with the I-64 Eastbound Ramps by implementing the following improvements:**
    - Extend the existing eastbound right-turn lane on Highway DD (which measures about 200 feet in length) back to the intersection with Caledonia Parkway. This lane extension was recommended by the 40 DD Sports LLC Traffic Impact Study as a needed improvement to mitigate the impact of Phase 2 of that development.
    - Provide three through lanes on the eastbound approach to the intersection.
    - Add a second westbound through lane on Highway DD at the intersection.
    - Provide a second left-turn lane on the I-64 Eastbound Off-Ramp. This improvement is needed to mitigate an existing deficiency independent of future development and could be construed as the responsibility of others.

5. **Expand the capacity of the Highway DD intersection with the I-64 Westbound Ramps by implementing the following improvements:**
    - Add a second left-turn lane on the I-64 Westbound Off-Ramp.
    - Expand the westbound Highway DD/Winghaven Boulevard approach to provide three through lanes at the intersection.

6. **Convert eastbound left-turn movement on Winghaven Boulevard at Technology Drive/MasterCard Boulevard to dual left-turn lanes**. Note that the left-turn volume not be materially affected by the proposed development, and so the Streets of Caledonia would not directly benefit from increased left-turn capacity. However, the proposed development would increase the east-west through movements on Winghaven Boulevard. This improvement represents the most cost-effective opportunity to increase the intersection's capacity to mitigate the impact of the additional through traffic.

It was concluded that the prescribed transportation improvements for the 2025 Build scenario would accommodate the traffic generation of Phase 1 of the Streets of Caledonia and effectively mitigate any adverse impacts. In fact, the recommended improvements would enable some intersections to operate more effectively as compared to the No Build condition, despite heavier traffic volumes due to the proposed development.

The following transportation improvements are recommended to accommodate full build-out:

1. **Implement all transportation improvements previously recommended for the 2025 Build Scenario (Streets of Caledonia Phase 1 analysis).**

2. **Add a dedicated eastbound right-turn lane at Highway DD and Caledonia Parkway/Caledonia Drive.**

3. **Reconfigure the roundabout at Highway DD and Dalriada Boulevard to accommodate two eastbound and westbound through lanes in each direction on Highway DD.**

4. **Add a fourth westbound through lane on Winghaven Boulevard at the I-64 Westbound Ramps intersection.** Note that the 7 traffic lanes proposed for the Highway DD/Winghaven Boulevard overpass over I-64 would not preclude the addition of the Texas U-Turn movement identified as part of the Horner & Shifrin I-64 one-way outer roads concept. The overpass currently has over 125 feet of pavement width.

5. **Connect Caledonia Parkway to the existing two-way I-64 South Outer Road and the new I-64 one-way outer road with a single-lane roundabout.**

6. **Provide direct access to the Streets of Caledonia along the proposed I-64 one-way outer road.** These connections would be particularly critical, as the access redundancy would significantly lessen the development's reliance on Highway DD and its signalized intersection with Caledonia Parkway to provide access for the site.

   Approximately 3,000 feet of distance would exist along the one-way outer road between the right-out from the roundabout at Caledonia Parkway and the gore for the slip ramp onto eastbound I-64. A total of 3 access driveways could be accommodated along this segment and remain compliant with MoDOT's Access Management Guidelines. As the development plan solidifies for the office portion of the developments, the locations of the 3 driveways should be optimized to maintain a minimum of 660 feet of spacing from adjacent driveways (measured centerline-to-centerline).

It was concluded that the prescribed transportation improvements noted above would accommodate the full traffic generation of the Streets of Caledonia and effectively mitigate any adverse impacts. In fact, the recommended improvements would substantially improve operations at some locations as compared to the 2045 No Build condition. All intersections and approaches would operate at LOS E or better during the peak hours.

APPENDIX

Appendix A: Existing Transportation System

Highway DD is two-lane mostly rural highway maintained by MoDOT. It runs west from I-64 through the rapidly developing western limits of the City of O'Fallon before turning south. The roadway runs along the periphery of the Busch Wildlife Area eventually terminating at Highway 94. Highway DD is classified as a major collector by East-West Gateway Council of Governments (EWGCOG). In the study area, it has a posted speed limit of 45 miles per hour (mph).

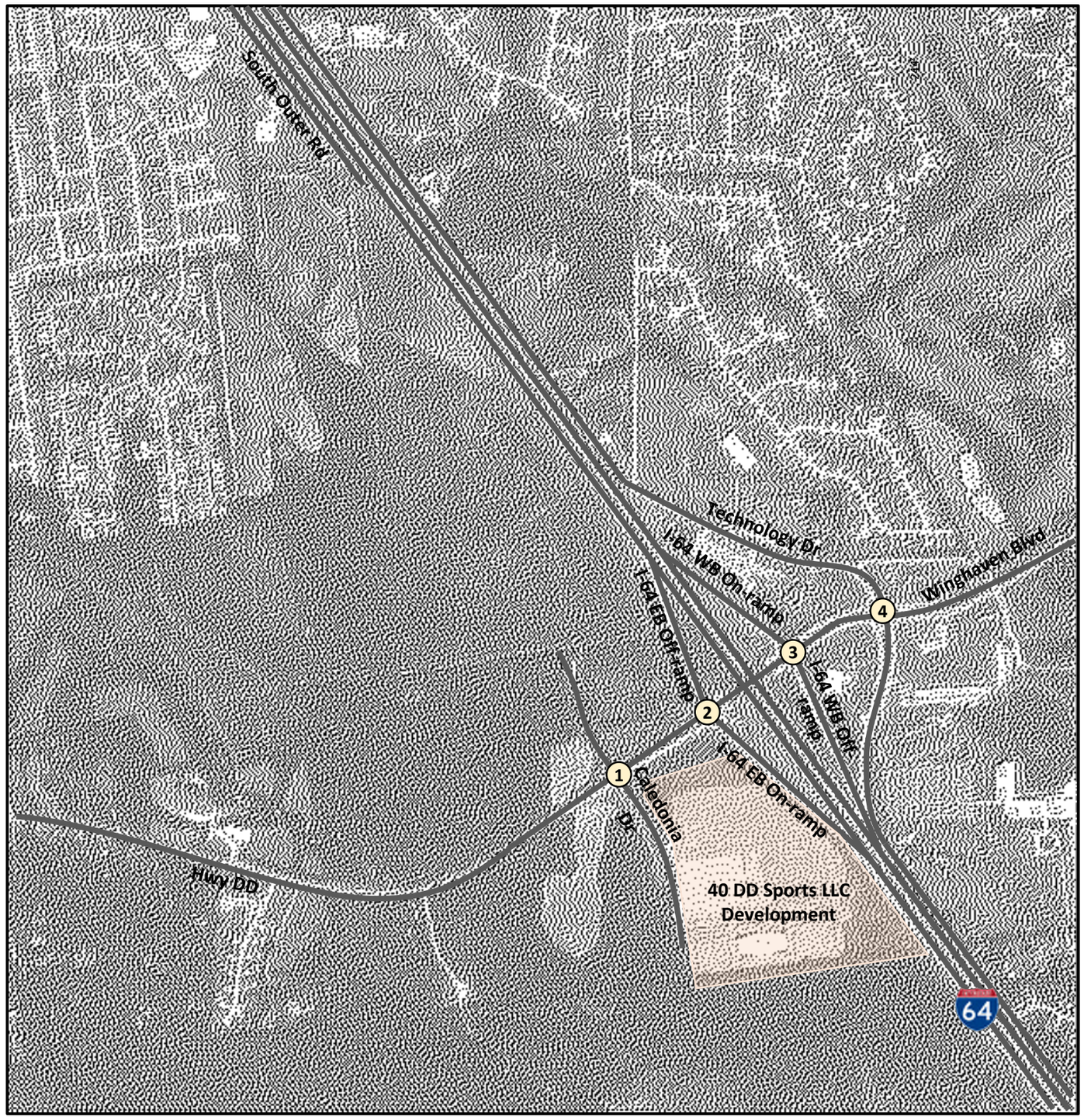
Winghaven Boulevard is a four-lane roadway with a raised landscaped median that accommodates dedicated left-turn lanes at median openings. It runs east from I-64 through the existing Winghaven development where it serves as the primary means of access for MasterCard and the other businesses and residences in the immediate area. Further to the east, Winghaven Boulevard turns northward and becomes Bryan Road, which connects with Highway 364 and eventually terminates at Interstate 70 (I-70). EWGCOG classifies Winghaven Boulevard and Bryan Road as principal arterials, recognizing the regional north-south connectivity the corridor provides in linking I-70, Highway 364, and I-64. In the study area, Winghaven Boulevard is maintained by the City of O'Fallon and has a posted speed limit of 35 mph. Its intersections with Technology Drive/MasterCard Boulevard and both I-64 ramps are signalized.

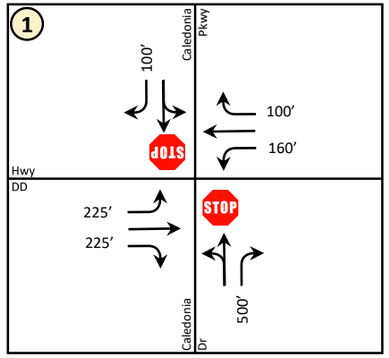
Technology Drive/MasterCard Boulevard is maintained by the City of O'Fallon and is classified as a major collector. It generally provides one lane in each direction, but segments of the roadway near Winghaven Boulevard have additional through and turn lanes. It has a posted speed limit of 40 mph.

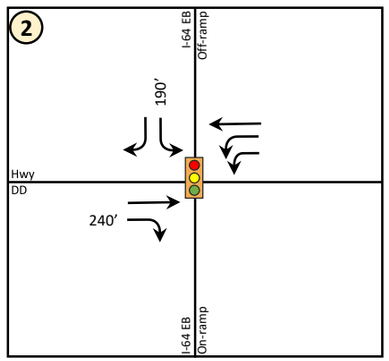
The existing lane configuration of each study intersection is illustrated in **Exhibit A1**.

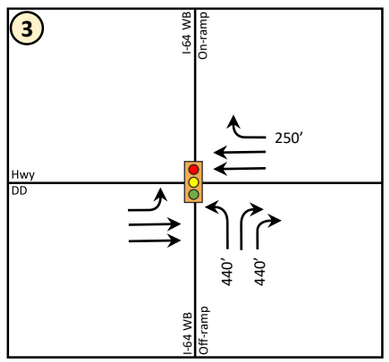
Table A1: Study Intersections Existing Characteristics

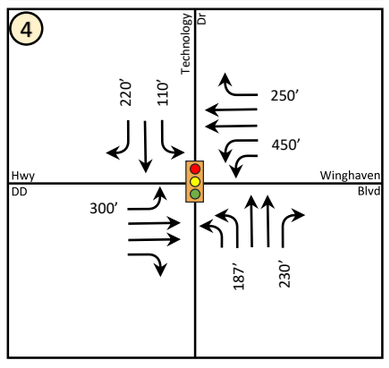
Study Intersection	Operating Agency	Traffic Control	Notes
DD/Caledonia Drive	MoDOT	Partial Stop	• All right-turn movements are channelized • Dedicated EB and WB left-turn lanes
DD/ I-64 EB Ramps	MoDOT	Signal	• Protected-only WB left-turn phasing
DD/ I-64 WB Ramps	MoDOT	Signal	• Protected-only EB left-turn phasing
Winghaven/ Technology	O'Fallon	Signal	• All left-turn phasing protected-only











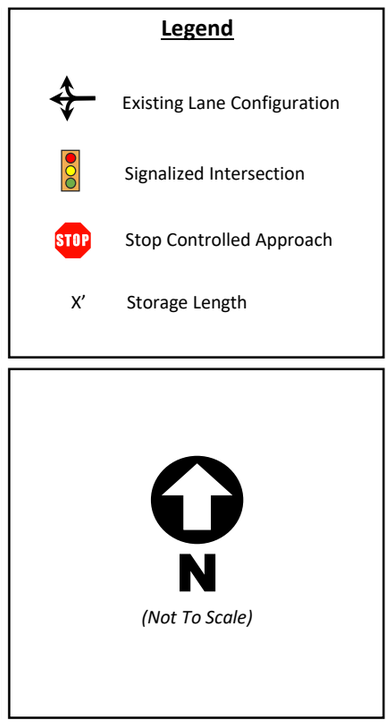


Exhibit A1:Existing Lane Configurations

Appendix B: Baseline Traffic Data

Typically, the first step in quantifying existing traffic volumes on study area roadways is to perform traffic counts. However, in the case of this study, traffic counts were not performed. Instead, traffic volumes were utilized from the Traffic Impact Study previously prepared for the 40 DD Sports LLC development, located across Highway DD from the Streets of Caledonia. Since only a portion but not all of Phase 1 of that development is complete, it was necessary to utilize the Phase 1 forecasted volumes from the approved 40 DD Sports LLC Traffic Impact Study as the traffic volume basis for this study.

From that study, it was determined that the peak hours of traffic flow occur from 7:00 a.m. to 8:00 a.m. in the morning and from 4:30 p.m. to 5:30 p.m. in the afternoon. The 2017 Baseline traffic volumes are summarized in **Exhibit A2**.

As shown, prevailing traffic patterns on Winghaven Boulevard are relatively balanced east-west during the peak hours. Whereas as volumes on Highway DD reflect a directional split, with eastbound traffic heavier in the morning and westbound traffic heavier in the afternoon.

It should be noted that volumes at the Highway DD interchange with I-64 are influenced by MasterCard and other area businesses. These uses attract heavy traffic volumes from I-64 westbound in the morning that then turn to the east on Winghaven Boulevard. In the afternoon, commuters departing these businesses use westbound Winghaven Boulevard and then turn left to enter eastbound I-64 towards St. Louis County.

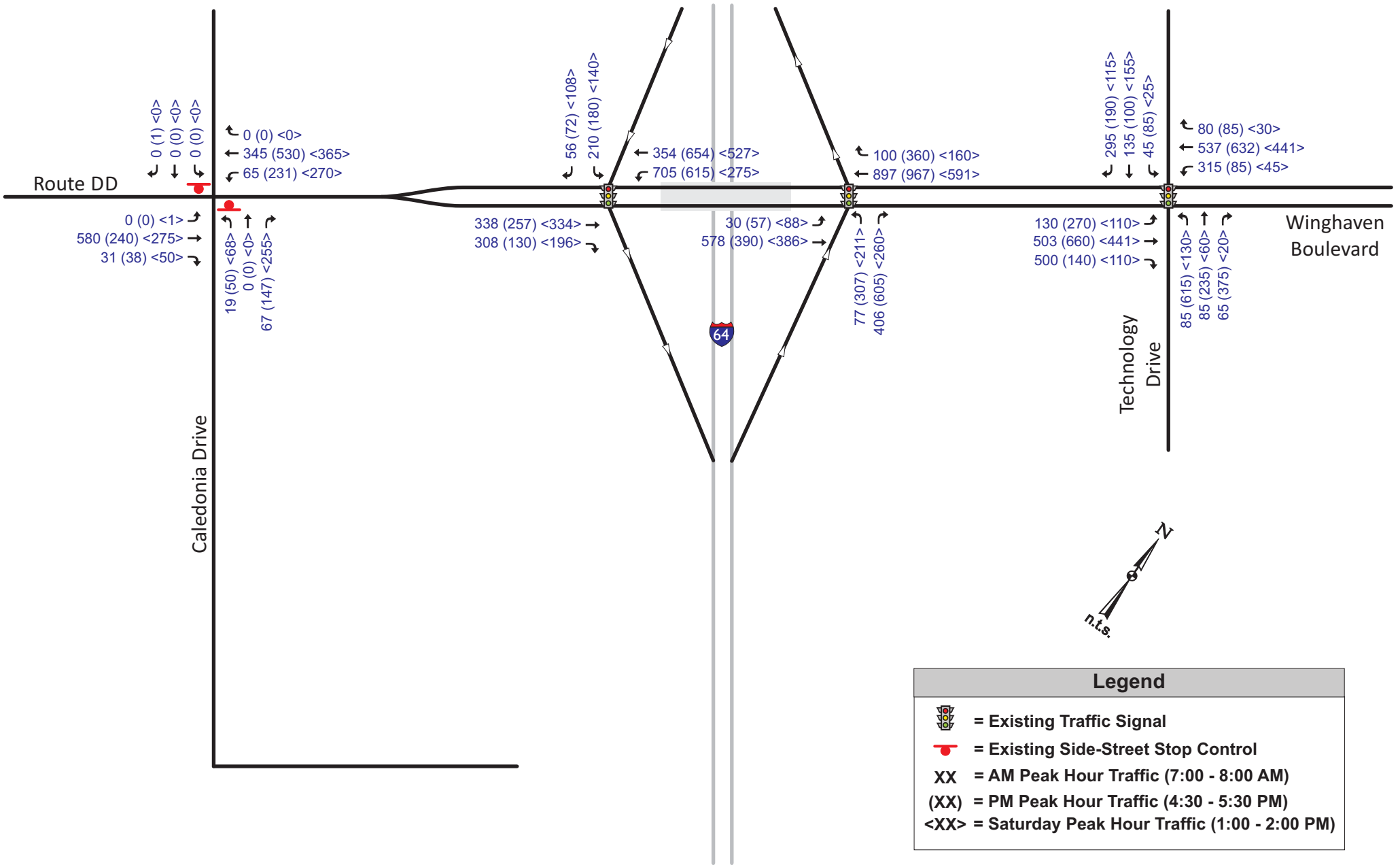


EXHIBIT A2 Exhibit 4: 2017 Build Traffic Volumes

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Appendix C: Analysis Methodology

Traffic operating conditions were evaluated using Synchro 10, which is a macro-analytical software tool based upon "Highway Capacity Manual" (HCM) methodologies, most recently updated in 2016 by the Transportation Research Board.

The HCM quantifies transportation system performance using Levels of Service (LOS), which are measures that consider factors such as speed, delay, safety, and driver comfort and convenience. There are six levels of service ranging from LOS A ("free flow") to LOS F ("oversaturated"). LOS C is commonly used for design purposes and represents a roadway operating at approximately 70 to 80 percent of its capacity.

Levels of service criteria vary depending upon the type of roadway component being evaluated. Intersections are most commonly evaluated, since capacity is commonly dictated by the number of vehicles that can be served at critical intersections. The levels of service criteria for intersections are based on traffic delay and vary by type of control (i.e., whether it is signalized or unsignalized) as summarized in **Table A2**. Signalized intersections reflect higher delay tolerances because motorists are accustomed to longer delays at signals.

Table A2: Intersection Levels of Service Thresholds

Level of Service	Control Delay per Vehicle (seconds/vehicle)	
	Signalized	Unsignalized
A	≤ 10	≤ 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 perception of acceptable traffic service varies by area. More delay is usually tolerated in urban and suburban areas as compared to rural areas. Based on the character of this area, LOS D or better would be an appropriate definition of acceptable overall peak period traffic conditions at intersections. LOS E or better would be an acceptable benchmark for individual intersection approaches and movements.

Appendix D: Trip Generation Methodology

The number of trips that would be generated by the Streets of Caledonia and Drury developments was forecasted using Trip Generation, 10th Edition, published by the Institute of Transportation Engineers (ITE). This approach is commonly employed by transportation engineers to estimate the trip generation for a catalog of land uses. The ITE Trip Generation Handbook's process for selecting the average rate or fitted curve equation was followed in estimating the trip generation for each proposed use.

It is important to note that ITE estimates assume each use would be freestanding. Instead, the proposed uses would be connected internally and share points of external access and parking. Internal trips between complementary uses (i.e., residents dining at restaurants) would reduce the amount of traffic generated externally. Additionally, visitors to multi-use developments often patronize more than one business as part of a single visit, further reducing the number of trips generated externally. Therefore, a "common trip" reduction factor was applied to account for internal trips.

The common trip reduction factor was estimated using the Internal Capture Estimation process documented in the Trip Generation Handbook. This process considers the mixture and sizes of the land uses along with the relative distances between complementary uses in estimating common trip reduction factors. Since the proposed uses would be mostly segregated rather than "mixed", this methodology was used as a reference in determining common trip reduction factors. The reduction factors that were ultimately applied herein reflect engineering judgment in addition to output from the methodology.

Note that common trip reduction factors were applied only to the portion of the development situated north of Highway DD. The development south of Highway DD would be reasonably small such that common trips between those uses would be nominal. Site-generated trips across Highway DD between the north and south portions of the development were reflected as external trips, as they would affect traffic operations at intersections along Highway DD. Separate common trip reduction percentages were estimated for Phase 1 and Phase 2, as the introduction of office space and a larger quantity of homes in Phase 2 would increase the rate of internal capture. The common trip reduction percentages are summarized in **Table A3**.

Table A3: Common Trip Reduction Percentages

Land Use	Phase 1		Phase 2	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Retail	10%	15%	15%	20%
Restaurant	15%	25%	25%	35%
Residential	5%	5%	7%	7%
Hotel	5%	25%	5%	25%
Office	N/A	N/A	5%	5%

Given the commercial nature of some uses, not all trips generated by the proposed development would be new to the study area road system. Rather, a portion of the trips would be attracted to the site as part of an existing trip to another destination. Studies indicate that convenience-oriented uses such as gas stations, retail, restaurants, and banks attract a sizable amount of "pass-by trips". These trips are already traveling on the adjoining public roadways and would turn into the site to patronize the proposed uses before continuing on to a different destination.

For purposes of this this study, pass-by trips were captured from Highway DD but also diverted from the I-64 interchange. The pass-by trip percentages applied herein are based upon studies published in the Trip Generation Handbook and are summarized in **Table A4**.

Table A4: Pass-By/Diverted Trip Percentages

Land Use	ITE Code	Pass-By/Diverted Trips (%)	
		AM Peak Hour	PM Peak Hour
Shopping Center	820	0%	34%
Fast Food Restaurant	934	50%	50%
High-Turnover Sit-Down Restaurant	932	0%	43%
Pharmacy with Drive-Thru	881	0%	50%
Drive-In Bank	912	29%	35%
Gas Station with Convenience Market	945	62%	56%

Appendix E: Directional Distribution Estimate

Trips were assigned into and out of the development site based on an anticipated directional distribution that was determined using guidance from the St. Charles County Travel Demand Model. Specifically, population and employment projections were developed for the Streets of Caledonia development for both Phase 1 (including the Drury Development) and full build-out. These projections were then input into the St. Charles County Travel Demand Model for the traffic analysis zone (TAZ) encompassing the site.

The model was run for 2030 (closed available model scenario to 2025) and 2045 representing Phase 1 and full build-out scenarios for the Streets of Caledonia. A "select link" analysis was performed on the TAZ's centroid connector. This identified the volume of traffic utilizing all routes traveling to/from the site. A comparison of the 2030 and 2045 "select link" analyses revealed only nominal differences. Therefore, a single set of directional distribution percentages was applied to both the 2025 Build and 2045 Build scenarios.

However, separate distributions were applied for office, retail, and residential distributions taking into consideration anticipated market areas, commuting patterns, and major local and regional destinations. Also, note that separate distributions were assumed for the retail uses north and south of Highway DD. As noted in the Trip Generation Methodology (**Appendix D**), inter-development trips traveling across Highway DD were reflected externally as local trips. Given the variance in retail square footage on each side of Highway DD, separate distributions were necessary to balance trips in and out. For each distribution, the non-local origins/destinations were proportionally adjusted to ensure the sum in and out of each area equaled 100 percent.

The applied directional distribution percentages are summarized in **Table A5**.

Table A5: Streets of Caledonia Directional Distribution Percentages

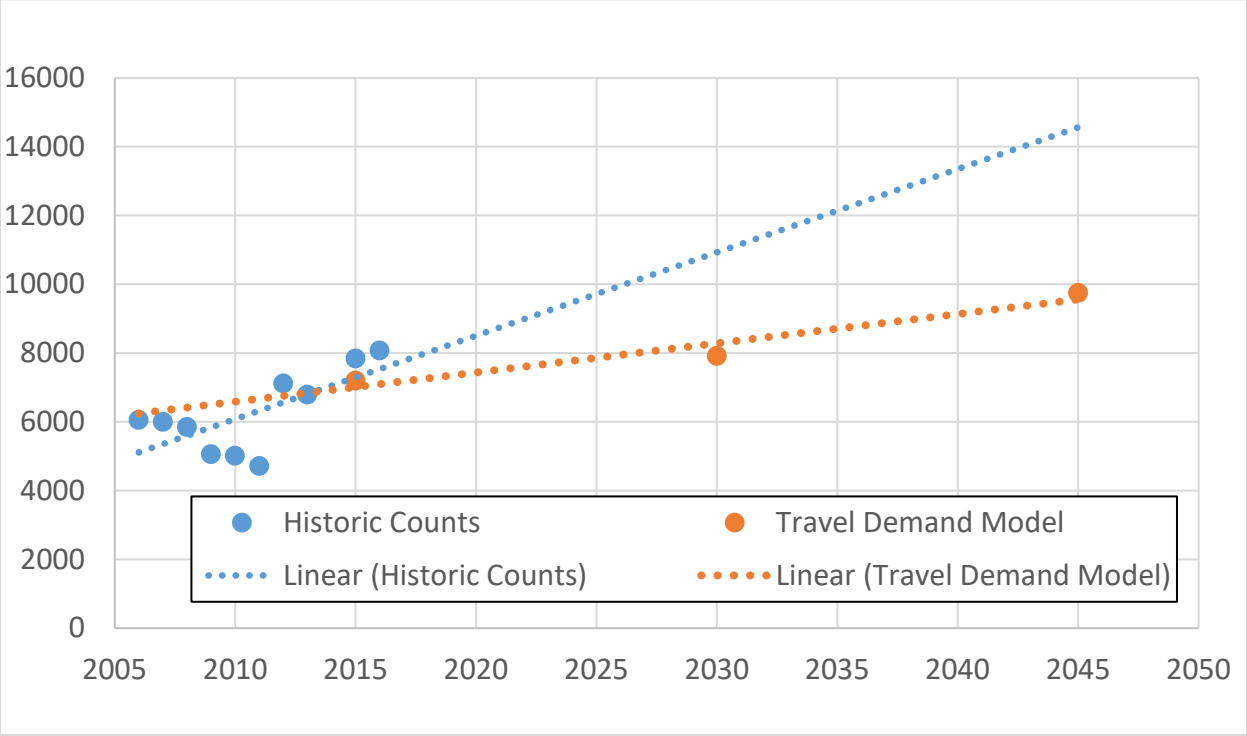
Origin/Destination	Retail North of DD	Retail South of DD	Residential	Office
To/From I-64 East	15%	12%	34%	35%
To/From I-64 West	15%	12%	15%	20%
To/From East on Winghaven Boulevard	35%	28%	35%	34%
To/From North on Technology Drive	2%	1%	0%	0%
To/From South on MasterCard Boulevard	10%	8%	1%	1%
To/From West on Highway DD	10%	8%	5%	5%
To/From North on South Outer Road	6%	5%	10%	5%
Local Trips Across Highway DD	7%	26%	0%	0%

Appendix F: Background Growth Methodology

Future increases in traffic due to "background" growth were estimated using output from the St. Charles County Travel Demand Model with consideration for historic traffic volumes. The travel demand model assigned network volumes from 2045 and 2030 were compared to assigned network volumes from 2015. An annual growth rate was calculated from the difference in volumes over the full 30 year period. The calculated rate reflected a consistent 1 percent annual growth rate on the study area roadways. Therefore, 1 percent was the annual rate of background traffic increases applied to this study.

As a validation check, historic traffic counts for Highway DD west of I-64 were obtained from published MoDOT annual traffic volume maps, as show in **Figure A1** along side the travel demand model results. Historic counts between 2006 and 2016 reflect growth in excess of 2.5 percent annually, which exceeds the rate reflected by the travel demand model output. However, this was deemed acceptable as the Streets of Caledonia traffic generation (which was not reflected in the travel demand model outputs) would more than compensate for the difference. If the historic growth rate was applied as background growth on top of the Streets of Caledonia site-generated trips, the capacity of Highway DD would quickly be exceeded and the resulting volume projections would have been unrealistic.

Figure A1: Highway DD West of I-64 Historic and Forecasted Daily Traffic Volumes



Appendix G: Traffic Signal Warrant Analysis

Traffic signal warrant analyses were completed for the intersection of Highway DD and Caledonia Parkway/Caledonia Drive based on 2025 Build conditions. The evaluation was based on criteria specified in the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD provides nine criteria for evaluating an intersection and determining whether a traffic signal is justified. Warrant 1, 8-Hour Volume, is most commonly applied.

The traffic volumes for the 8th highest hour during a typical day are estimated to be approximately 55 percent of the peak hour volume. If the 8th highest hour does not meet the criteria for a traffic signal, the requirements for Warrant 1 would not be satisfied.

There are two conditions that constitute Warrant 1: 1) Condition A is intended where large volumes of traffic intersect, and 2) Condition B is applied to situations where a continuous flow of traffic on the major street creates a significant delay for traffic on the minor street to enter or cross the major street.

The MUTCD indicates if the posted speed limit exceeds 40 mph, then a reduction in the traffic volume requirements may be used. Specifically, volumes in the 70% and 56% columns may be applied in place of the 100% and 80% columns. The speed limit on Highway DD is 45 mph, so the 70% and 56% criteria were applied. The Warrant 1 analysis is summarized in **Table A6**.

Table A6: Signal Warrant Analysis for Highway DD and Caledonia Parkway/Caledonia Drive

Warrant 1	# of Lanes		8th Highest Hourly Volume				Major Street (both approaches)		Minor Street (one-direction)		Satisfy Requirement ?
	Major	Minor	Major Street		Minor Street		70%	56%	70%	56%	
			AM	PM	AM	PM					
Condition A	2 or more	2 or more	1044	1192	254*	326*	420	336	140	112	Yes
Condition B	2 or more	2 or more					630	504	70	56	Yes

* Minor street volume was adjusted (100% reduction) to account for right turns making a right on red without the use of the signal

Appendix H: Right-Turn Lane Warrants Analysis

Right-turn lane analyses were performed in accordance with the procedures specified in MoDOT's Access Management Guidelines. The guidelines provide nomographs illustrating minimum volume requirements as to when a right-turn lane should be considered. When the combination of right-turn and through volumes lies to the right of the nomograph's boundary line, a right-turn lane should be considered. The nomographs for the following right-turn lane warrants evaluations are illustrated below in Figure A2 through A:

- Highway DD westbound at site's RIRO driveway – Warranted in 2025
- Highway DD eastbound at Caledonia Parkway – Not warranted in 2025
- Highway DD eastbound at Caledonia Parkway – Warranted in 2045
- I-64 One-Way Outer Road at RIRO Entrance #1 – Warranted in 2045
- I-64 One-Way Outer Road at RIRO Entrance #2 – Warranted in 2045
- I-64 One-Way Outer Road at RIRO Entrance #3 – Warranted in 2045

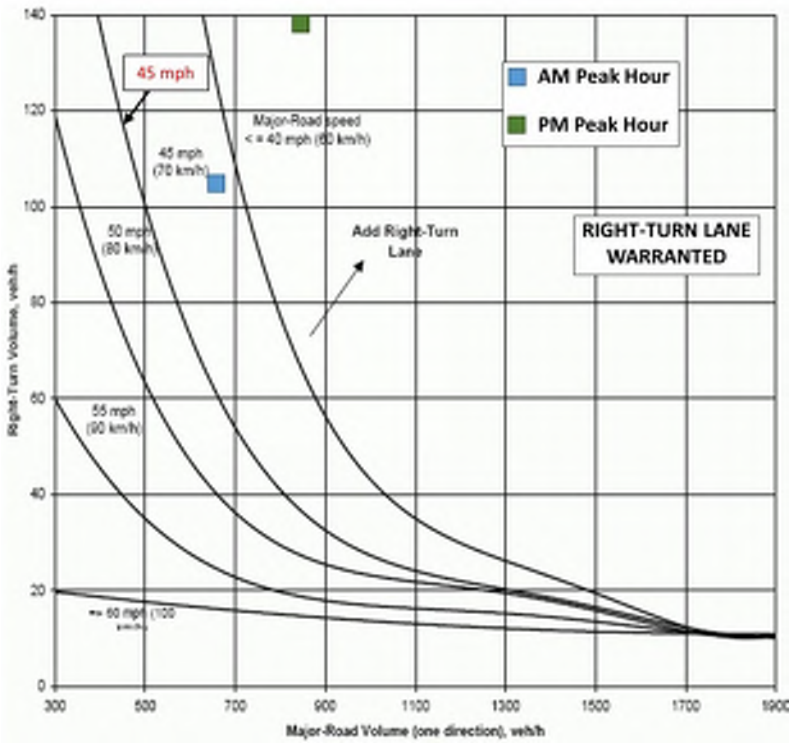


Figure A2: Westbound Highway DD Right-Turn Lane Warrants at Site RIRO

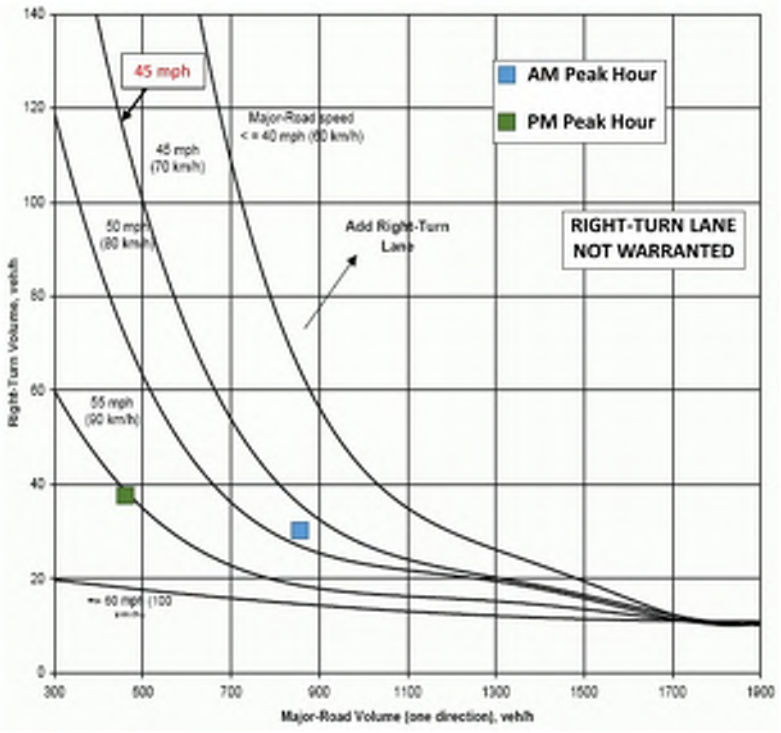


Figure A3: Eastbound Highway DD Right-Turn Lane Warrants at Caledonia Parkway 2025

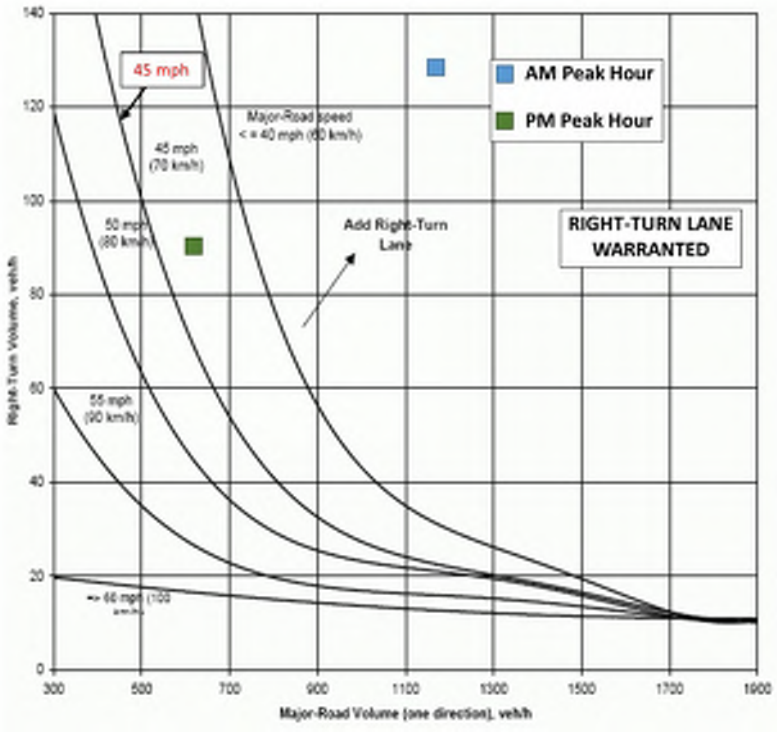


Figure A4: Eastbound Highway DD Right-Turn Lane Warrants at Caledonia Parkway 2045

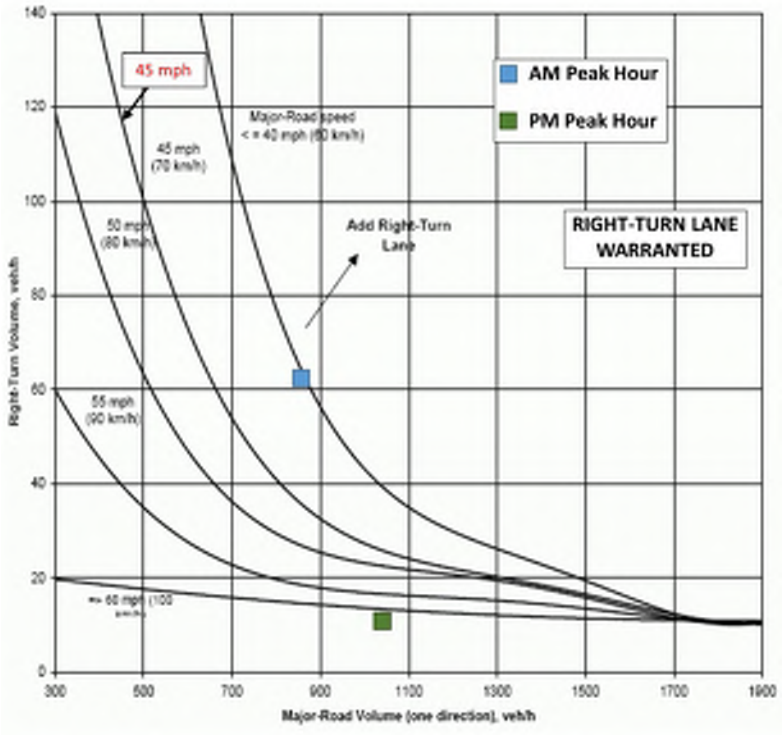


Figure A5: I-64 Outer Road Right-Turn Lane Warrants at RIRO Entrance #1

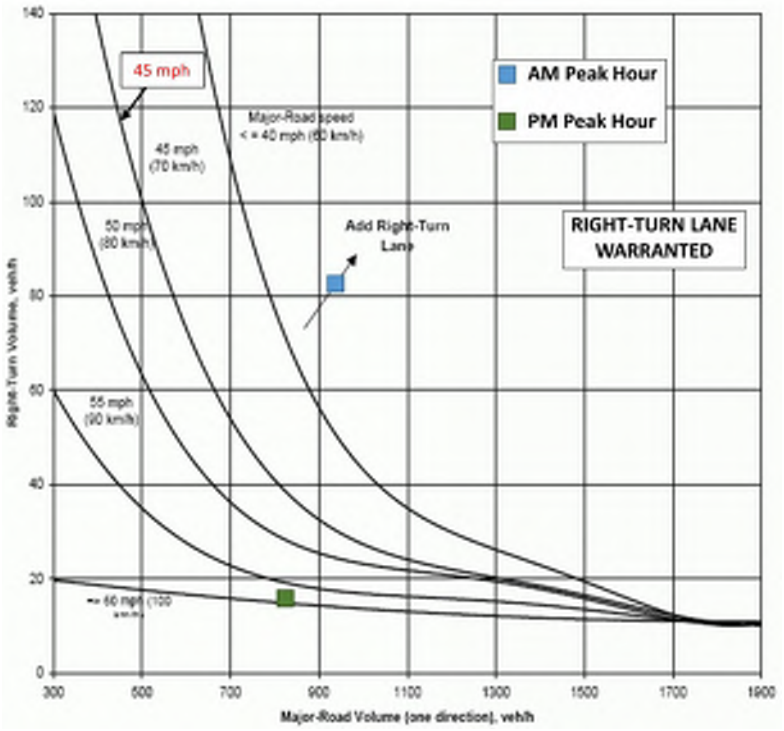


Figure A6: I-64 Outer Road Right-Turn Lane Warrants at RIRO Entrance #2

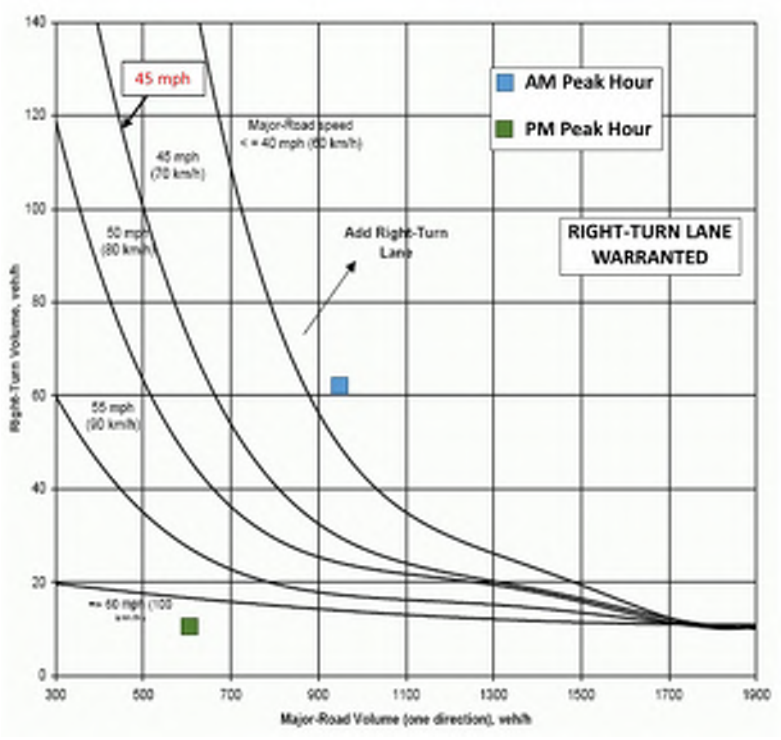


Figure A7: I-64 Outer Road Right-Turn Lane Warrants at RIRO Entrance #3

Appendix I: Streets of Caledonia Site Plan

CONCEPTUAL SITE PLAN 8.13
THE STREETS OF CALEDONIA
O'FALLON, MISSOURI

OCTOBER, 2018

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- COMMERCIAL (C-2 ZONING)
- PAYNE RESIDENTIAL

PROPOSED ZONING

C-2	100.87 AC.±
R-3 PUD	159.71 AC.±
TOTAL	260.58 AC.±

NOTES:
1. P.U.D. OPEN SPACE (EXCLUDING RIGHT-OF-WAY) = 18.7%
2. OF 159.71 ACRES OF "R" ZONING, 20.2 ACRES IS FOR COMMON AREA WITH 5 REGIONAL STORM BASINS TO BE USED BY BOTH RESIDENTIAL AND COMMERCIAL USERS.

LOT DATA	
LOT TYPE	LOT TOTALS
47' WIDE LOTS	89 LOTS
50' WIDE LOTS	66 LOTS
52' WIDE LOTS	41 LOTS
62' WIDE LOTS	53 LOTS
72' WIDE LOTS	58 LOTS
80' WIDE LOTS	54 LOTS
90' WIDE LOTS	14 LOTS
NEOTRADITIONAL LOTS	82 LOTS
TOWN HOMES (UNITS)	205 (UNITS)
TOTAL UNITS	662 UNITS

OCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@ochran.com
: Civil Engineering
: Land Surveying
: Architecture
: Site Development
: General Contracting
: Master Planning
Missouri State Certificate of Authority Numbers:
Survey : 000380
Engineering : 001655
Architecture: 2002014240

Two working days prior to the start of excavation, the contractor shall call 1-800-DIG-RITE for utility location information.

All OSHA rules & regulations shall be followed during construction. Nothing on these plans shall be strictly followed (ie. if trenching, shoring, etc.)

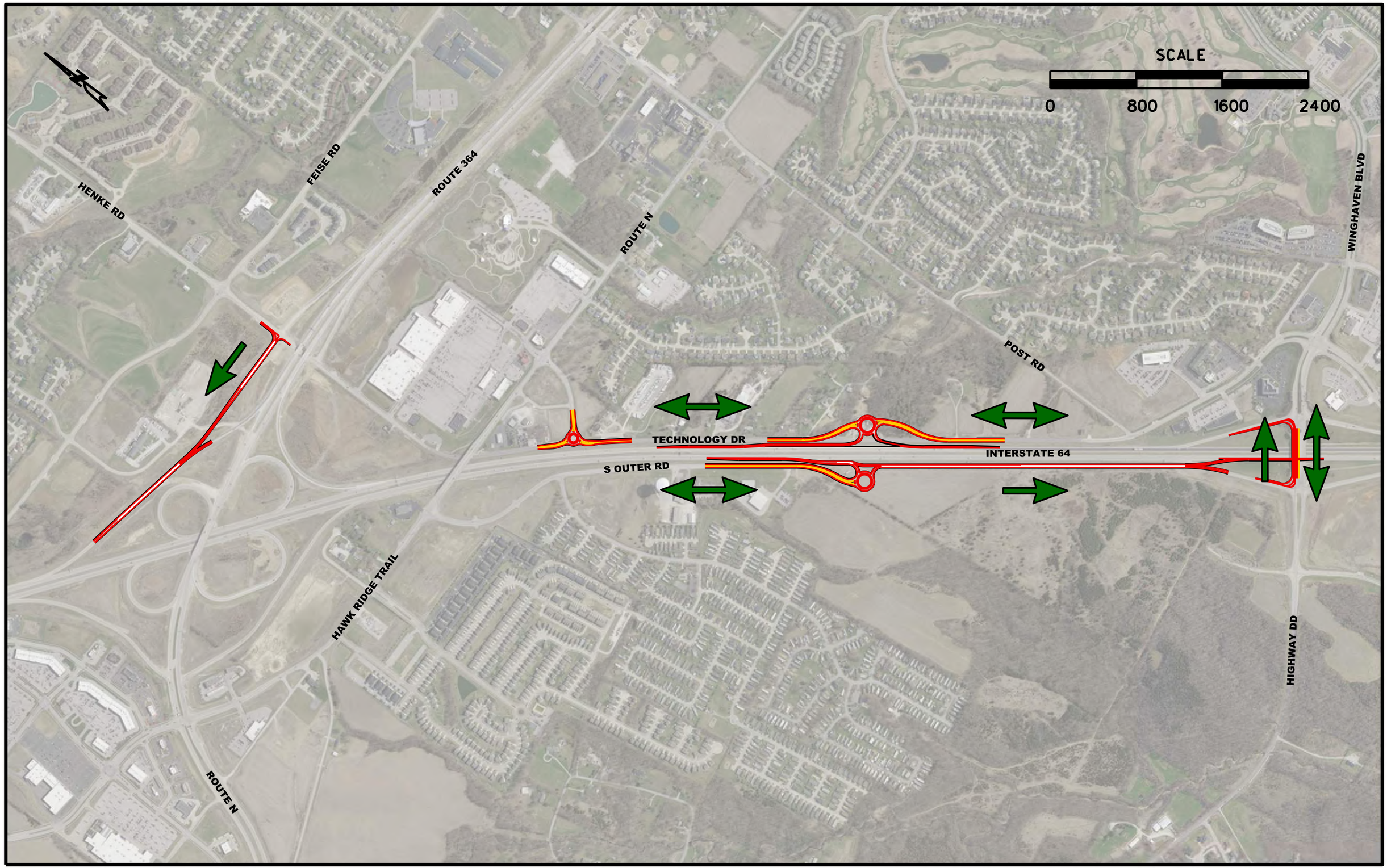
THE STREETS OF CALEDONIA
O'FALLON, MISSOURI

CONCEPTUAL SITE PLAN 8.13

DWN. BY	APPD. BY
JMM	ERR

DATE: OCT. 8, 2018
SCALE: 1" = 200'
PROJ. NO.: 17-6821
DWG. NO.: 8.13

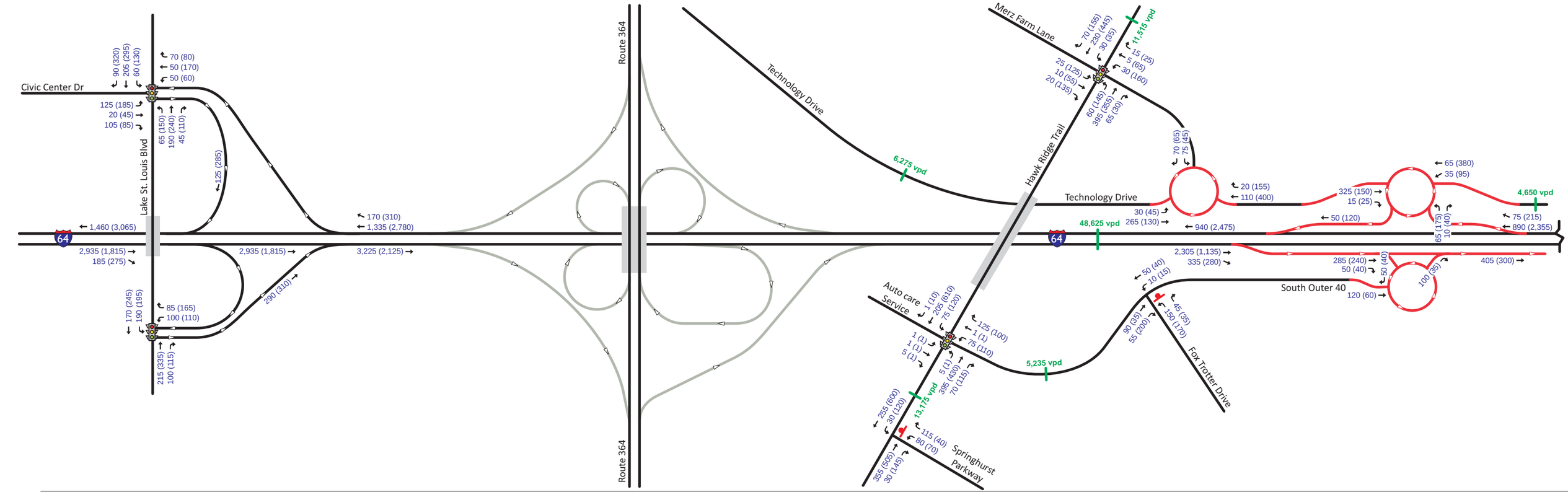
Appendix J: Horner & Shifrin I-64 Outer Roads Concept



I-64 OUTER ROAD STUDY
EXHIBIT 1: PREFERRED CONCEPT OVERVIEW

JULY 25, 2018

Appendix K: Horner & Shifrin I-64 Outer Roads Traffic Forecasts



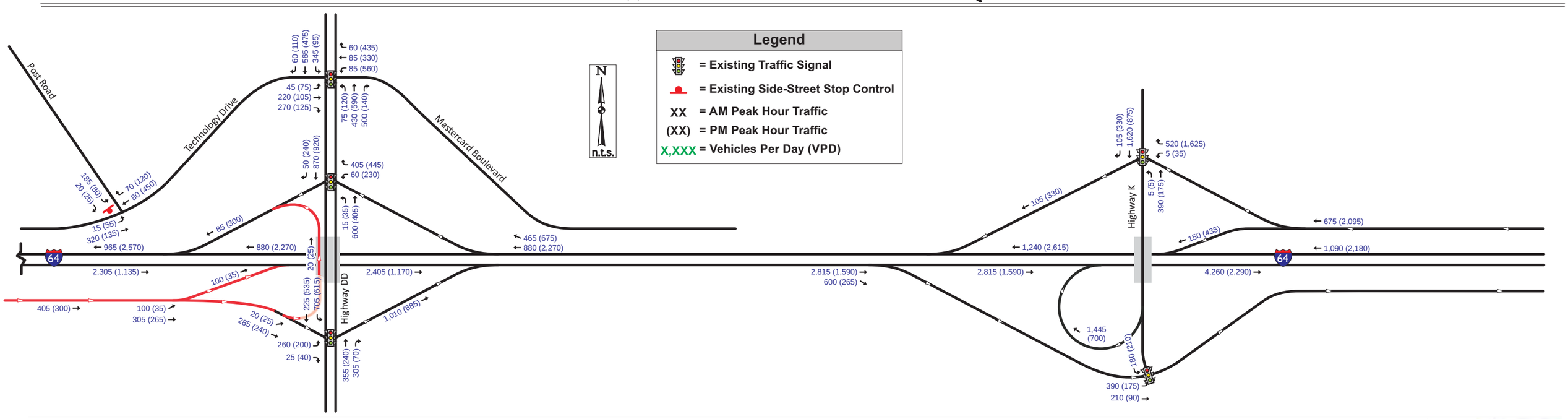


Exhibit 3A: I-64 - 2017 Build Preferred Option

DRAFT

Job# 075-17
07/23/18