WORK SESSION MEETING
AGENDA
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
JULY 8, 2019
6:00 PM

CALL TO ORDER

ROLL CALL

DISCUSSION ITEMS

1. **Approval of June 24, 2019 City Council Work Session Meeting Minutes**

2. **Old Olive Street Road Great Street Plan**
   Summary: In furtherance of the 39N Master Plan, the City of Creve Coeur, and the St. Louis Economic Development Partnership, have entered into a contract with Christner, Inc. to further study the redesign of the Old Olive Street Road, in anticipation of the redesign of the Olive Boulevard and Lindbergh Boulevard interchange. The redevelopment of the Old Olive Street Road corridor is a key project in the new innovative AgTech district 39°North. Laurel Harrington will be presenting the final draft of the redesign plan for City Council feedback and comment. A public hearing and final adoption is scheduled for the August 5, 2019 Planning and Zoning Commission Meeting as an amendment to the 39N Master Plan and the Creve Coeur 2030 Comprehensive Plan.

Pursuant to Section 610.022 RSMo., the City Council could, at any time during the meeting, vote to close the public meeting and move to closed session to discuss matters relating to litigation, legal actions and/or communications from the City Attorney as provided under Section 610.021(1) RSMo. and/or personnel matters under Section 610.021(13) RSMo. And/or employee matters under Section 610.021(3) RSMo. and/or real estate matters under Section 610.021(2) or other matters as permitted by Chapter 610.

Posted: _____ posted 07/3/2019
Melissa Orscheln
Public Information Officer and Management Analyst

WORK SESSION MEETING MINUTES
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
JUNE 24, 2019
6:00 PM

CALL TO ORDER

A regular meeting of the City Council of the City of Creve Coeur was called to order by Mayor Glantz at the City Council Chamber, 300 North New Ballas Rd, City of Creve Coeur Government Center, Creve Coeur, MO 63141 on Monday, June 24, 2019 at 6:00 PM.

Council Member, Ward 2 Ellen Lawrence
Council Member, Ward 3 Robert Hoffman
Council Member, Ward 3 Scott Saunders
Council Member, Ward 1 Alexis Travers
Council Member, Ward 3 Susan Baseley
Council Member, Ward 1 Heather Silverman

Council Member, Ward 2 AJ Wang **-- Absent**
Council Member, Ward 3 Charlotte D'Alfonso **-- Absent**

ROLL CALL

Staff Present: City Administrator Mark Perkins, City Attorney Carl Lumley, Chief Eidman, Finance Director Lori Obermoeller, Public Works Director Jim Heines, City Engineer Matt Wohlberg, Assistant City Administrator Sharon Stott
Employee Pension Board of Trustees Present: Steve Unser, Jonathan McIntosh, Kelly Sullivan, David Caldwell, Michael Karasick
Also Present: Michael Zwiener of Milliman

DISCUSSION ITEMS

1. Approval of June 10, 2019 City Council Work Session Meeting Minutes

RESULT:	**ACCEPTED [UNANIMOUS]**
MOVER:	Robert Hoffman, Council Member, Ward 3
SECONDER:	Susan Baseley, Council Member, Ward 3
AYES:	Lawrence, Hoffman, Saunders, Travers, Baseley, Silverman
ABSENT:	Wang, D'Alfonso

2. Lump Sum Buyout Proposal for the Legacy Defined Benefit Pension Plan

Mike Zwiener with Milliman stated a buyout of members is something to explore to run the numbers even if everyone is not interested. Offering a buyout in a bull market with $20 million in assets.

Mayor Glantz stated to be clear we are discussing the Legacy Plan.

MINUTES
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
JUNE 24, 2019
6:00 PM

Mike Zwiener stated correct.

Council Member Baseley asked if this would be offered for a limited time.

Mike Zwiener stated yes, limited time and would need to find out how many participants are interested.

Council Member Lawrence asked who would be eligible for this offer.

Jonathan McIntosh stated any member that has left the city but was fully vested and possibly retirees.

Mike Karasick stated he doesn't see the downside in offering the lump sum.

Mark Perkins stated looking at it one step at a time. First, look at terminated, vested plan members before offering to retirees.

Mike Zweiner stated there would need to be an amendment to the plan document.

Council Member Silverman asked administratively, isn't it harder to offer in stages.

Lori Obermoeller stated that offering in stages will allow the staff to determine how difficult it will be to manage administratively, and may also present other considerations and lessons learned before offering to the larger retiree group.

Mayor Glantz summarized the consensus of the City Council was to move forward with this issue, directing the staff to bring forward an amendment to the pension plan for consideration.

Adjourned at 6:44 pm

RESULT:	**ITEM DISCUSSED**

city of CREVE COEUR

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MEMO TO PLANNING AND ZONING COMMISSION

Meeting Date: June 3, 2019

Subject: **Old Olive Street Road Great Street Plan**

Memo Prepared by: Whitney Kelly AICP, City Planner and Jason Jaggi, AICP, Director of Community Development

Attachments: 39N AgTech District – Old Olive Street Road Great Street

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In furtherance of the 39N Master Plan, the City of Creve Coeur, and the St. Louis Economic Development Partnership, entered into a contract with Christner, Inc. to further study the redesign of the Old Olive Street Road, in anticipation of the redesign of the Olive Boulevard and Lindbergh Boulevard interchange. The redevelopment of the Old Olive Street Road corridor is a key project in the new innovative AgTech district 39°North. Laurel Harrington, Project Manager with Christner, will be presenting the final draft of the redesign plan during the meeting of June 3rd. This document is a component of the Comprehensive Plan and the 39N Master Plan that was adopted by the Planning and Zoning Commission. As such, following the presentation and any edits or comments from the Commission that should be included, Staff will proceed with scheduling the Public Hearing and noticing for the official adoption of the Great Streets Plan as a component of the Comprehensive Plan and 39N Master Plan, at the August 5th Planning and Zoning Commission. The team will also be presenting the design before the City Council during a work session on July 8th.

Below is a summary of the public involvement efforts and the development of the plan thus far. In addition to Christner's team and the St. Louis Economic Development Partnership's outreach, information of the public meetings have been posted on the City's website, newsletter, and various social media outlets.

- Efforts for public outreach regarding the redevelopment of the roadway and development potential along the corridor began in March of 2018, with a Stakeholder Kick-off Meeting on April 6th 2018.

- Presentations on the designs for public input began with presentations at the Venture Café meetings. Held every third Tuesday of the month, the Venture Café is hosted in partnership with the St. Louis Economic Development Partnership and Donald Danforth Plant Sciences. It is free event that offers attendees the opportunity to make new connections while learning about a wide range of new technology related topics. The Old Olive redesign ideas were presented on **April 17, 2018** and **again in February 19, 2019**. On these two separate occasions, the team provided maps, renderings, email list sign-up sheets and comment cards and met with attendees to answer questions and talk through the design concepts

- A public open house "Street Design Party" was held on **October 11, 2018** was held in a vacant retail space in the Pavilion Development just south of Old Olive Street Road. Over 60 attendees took part in reviewing the projects historical information and learned about the draft design concept for the area. Attendees were given the opportunity to weigh in on the design concepts and to leave their comments for the team to review and integrate into the design.

- The design team attended the joint session of City Council and the Planning and Zoning Commission as a work session meeting on **October 22, 2018,** to present a summary of finding and key aspects of the developing design.

- **Final Presentation Public Meeting – April 30, 2019** was held at the Donald Danforth Plant Science Center. The design team provided a display of project boards and a large plan of the corridor for review by participates before a presentation of the design and question/comment session. Representatives from the design team, SLEDP, the City of Creve Coeur, and City of Olivette were available for questions. Over 75 attendees took part in the event. Attendees were given the opportunity to weigh in on the design concepts and to leave their comments.

In addition, the design team conducted several organizational outreach efforts, which included:

- **Bike to Work Day – May 18, 2018** at the Donald Danforth Plant Science Center, that included Group Facilitated Discussion on multi-modal transportation, existing bike route, safety, and bike route needs in the area
- **The Jewish Federation Millstone Campus – June 12, 2018**
  Although outside the City of Creve Coeur, the Jewish Federation's Millstone Campus (The J) is home to several institutions that serve the community and draw users of their facilities from neighborhoods adjacent to the 39°N district and beyond. The design team met with over a dozen officers and leaders that represented the different services offered within the Jewish Federation. This productive work session allowed the design team to learn about the issues and opportunities on the Millstone Campus, traffic flow in and around the campus, possible campus changes and observations about the multi-modal accessibility of the surrounding community.
- **Willow Brook Neighborhood Meeting – February 27, 2019**
  The design team presented the 39°N Master Plan context and the proposed design for Old Olive to the Willow Brook Subdivision Annual Meeting, and obtained resident's feedback about the proposed design.

Recommendations:
This presentation is an opportunity for the Commission to ask questions and provide comments regarding the draft Great Streets Plan and provide direction to Staff to schedule to public hearing for the August 5th, 2019 Planning and Zoning Commission meeting for adoption as a component of the Comprehensive Plan and the 39N Master Plan.

39˚N AgTech District – Old Olive Street Road Great Street

St. Louis Economic Development Partnership | City of Creve Coeur

May 5, 2019 DRAFT

CHRISTNER

Old Olive Street Road

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INTRODUCTION

Corridor Transformation - from MoDOT on-off ramps to an AgTech District Gateway

The Master Plan Context

The redevelopment of the Old Olive Street Road corridor is a key project in the new innovative AgTech district — 39°North. St. Louis has already earned international attention with the high concentration and high caliper of plant science PhDs doing research at the Donald Danforth Plant Science Center, Bio Research & Development Growth (BRDG) Park, Bayer-Monsanto, and Helix Center Biotech Incubator that are within the master plan focus area. For the new 39°North district, these institutions are the key existing anchors of a district that will encompass almost 600 acres.

The *39°North Master Plan* envisions new transportation networks woven into the existing framework of the business park, and institutional campuses. It envisions new development patterns and critical redevelopment infill. In response, the Old Olive corridor should be thought of as an 18-hour destination - one that considers commuters and workers within the corridor as well as residents who will enjoy and benefit from the new streetscape experience.

The master plan sets a bold vision for access and circulation in the district. Today, substantial barriers to connectivity exist along the Old Olive corridor. As a Missouri Department of Transportation (MoDOT) right of way, Old Olive primary function is to provide on and off ramps for Lindbergh Boulevard. For businesses in the area, it provides critical access for customers and is a key access point to the business park along Corporate Square Drive. What Old Olive does not do is cross Lindbergh Boulevard, State Route 340, controlled by MoDOT. The two halves of the 39°North district are awkwardly bisected by this limited access state highway. Creating connectivity through the whole district a primary goal of this project.

The master plan has identified Corporate Square Drive as one of the primary north-south connectors to provide multi-modal access to existing businesses and future land uses. In addition, a north-south greenway is currently being designed. The intersection of Old Olive Street Road with Corporate Square Drive, the greenway, Lindbergh and both Olive Boulevard intersections will be important nodes of the project.

With these goals in mind, this project will transform a vehicle-dominated commercial corridor into a Great Street – a street that is the gateway to the 39°N AgTech District, meets the needs of it users, and contributes to the economic and physical health of the community.

The first steps have been taken. A strong partnership between the City of Creve Coeur, City of Olivette, St. Louis Economic Development Partnership (SLEDP), and the Donald Danforth Plant Science Center has been formed with their sights set on transformation of the Old Olive corridor as the gateway to the 39°North AgTech district.

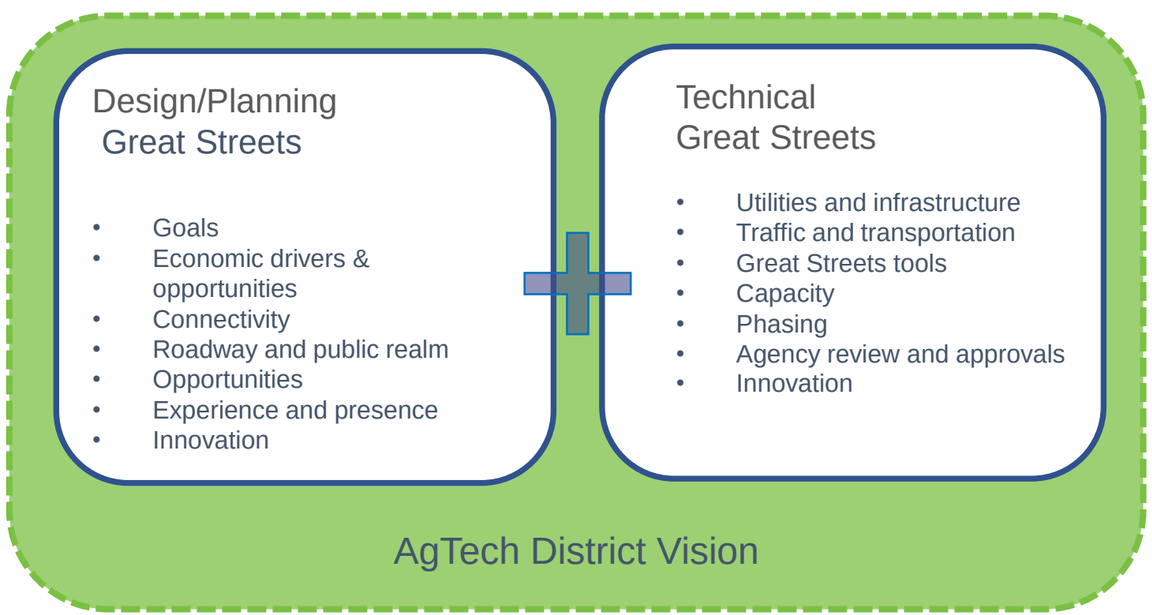
Great Streets Approach

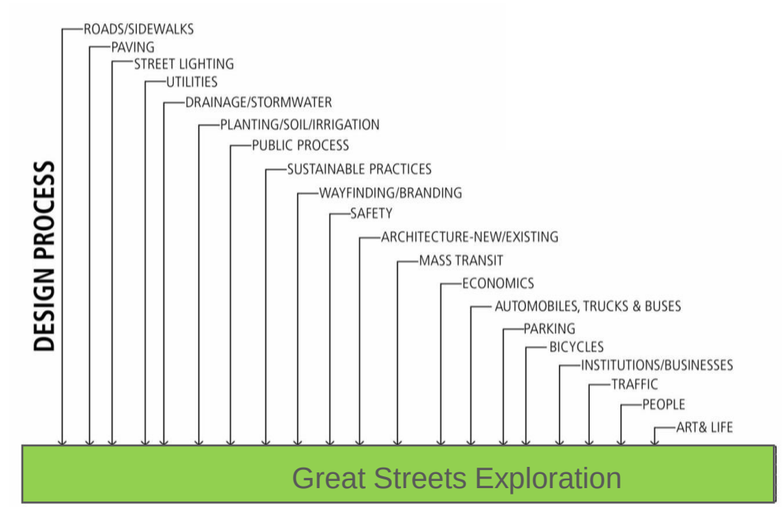
East-West Gateway Council of Government's *Great Streets Initiatives* served as the planning framework for the project. Design and planning dialog was organized around the Great Streets Principles that address sense of place, land use, transportation modes, economic development, sustainability, best practices, and collaboration. For the Old Olive corridor, the plan will…

- Build on the recommendations, goals and priorities of the *39°North Master Plan* and *City of Creve Coeur 2030 Comprehensive Plan*
- Integrate Great Streets principles, national best practices and local precedents in the planning outcomes
- Identify the economic development potential and anticipate land use evolution in the design of the corridor
- Transform the transportation environment to integrate and balance all modes
- Plan for future development opportunities of the Olive/Lindbergh interchange redesign including the new connector streets and highly visible redevelopment sites
- Integrate green infrastructure and environmental benchmarking into development concepts
- Create a public realm environment that reflects the dynamic future of this AgTech district

A Core Planning Team comprised of representatives and stakeholders from SLEDP, City of Creve Coeur, City of Olivette, Donald Danforth Plant Science Center, and Trailnet engaged in a Great Streets dialog and were the sounding board for the development of the Old Olive corridor. With an eye towards implementation, the challenge is the design of recommendations for today's physical conditions and functionality and master plan goals that envisioned substantial land use changes and opportunities. Therefore, the Old Olive corridor was studied with a current lens – the opportunity to physically link existing people, facilities, and community assets together today within the limited 60' wide right of way. And it was studied with a future lens – master plan thinking focused on smart decisions about land use; redevelopment, plans for future corridors and routes; and connectivity beyond the district to leverage regional initiatives. Unlike other Great Streets projects, the Old Olive project has an emphasis on preliminary engineering that would develop the design and technical details to 30% construction documents.

This Old Olive project focused on two phases: 1) Design and Planning and 2) Technical Documentation to 30% drawings. This document outlines the design and planning exploration, outcomes, and recommendations that includes public realm design, transportation and traffic, and economic development focuses of the project. The document also includes the preliminary engineering for civil, electrical, and signalization. A cost opinion was prepared for the full scope of the project and for logical implementation phases.





Project Goals

The Design Team and Core Working Team developed six main goals that guided the development of recommendations for the corridor. These include:

1) Provide **connectivity** for residents, businesses, employees, and visitors to safely access amenities throughout the District.

2) Create a sense of place within the corridor by developing physical improvements that define a **recognizable district** and a unique aesthetic.

3) Design **safe and efficient infrastructure** improvements that allow all forms of transportation to access the District.

4) Develop a **mixed-use corridor** that attracts residents, employees, and visitors to experience the District as an 18-hour destination.

5) Leverage the interchange transportation advantages, connector road access, and district-wide redevelopment opportunities to **generate transformation.**

6) Provide a **multi-modal crossing** at Old Olive and Lindbergh that improves accessibility for users and provides a vital linkage between the east and west portions of the corridor.

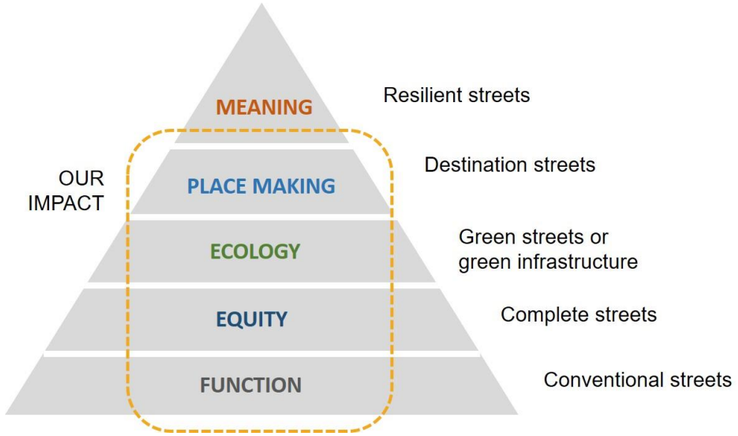
User Typologies

Not only do these goals seek to enhance the corridor for existing businesses and current residents, they look to the future to a set of users that do not currently live or work in the district. Existing and future user typologies of all types will be seeking services, amenities, and experiences that that are not currently provided. The Old Olive corridor has the potential to develop into a vibrant mixed use area that users in and out of the district will seek out.

Hierarchy of Design

The physical design of the street and right of way is within the Design Team and Core Working Team's influence in this project. In order to achieve the team's goals, there is a hierarch of design for public rights of way to achieve various levels of good or negative impact on the human experience. Too often, our public realm fall short on basic needs such as accessibility. In this project, our impact will influence the physical design outcomes of the following:

1) Function – provided by conventional streets and should include function and safety.
2) Equity – elements of complete streets that include ADA accessibility, multi-modal transportation options, and equitable access for all.
3) Ecology – integration of green infrastructure, native plantings, accommodation of wildlife and natural resources conservation.
4) Place Making – destination streets that promote quality of life, sense of place, and regional pride.
5) Meaning – a personal connection to the place, social interaction, mutual support and sharing of resources that evolve from Great Streets.



Hierarchy of Design for Streets

The ultimate goal in the design of the public realm through function, equity, ecology and placemaking is to reach meaning – resilient streets that strengthen connections between people and help bond a community together.

Typology of Users

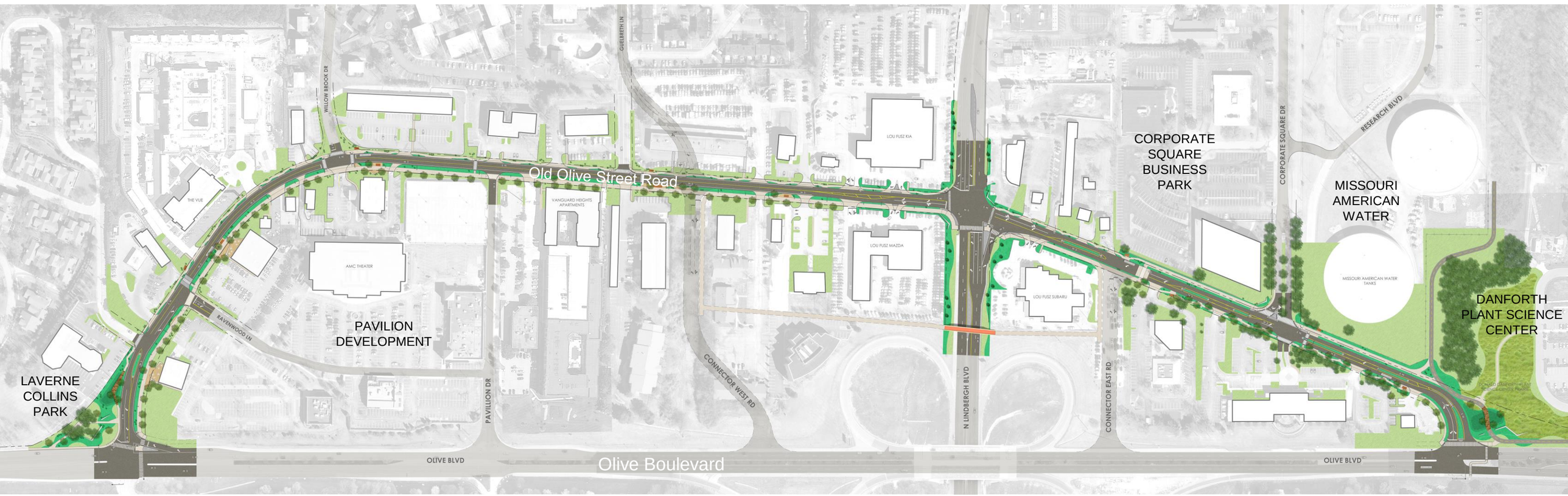
PLANNING FRAMEWORK

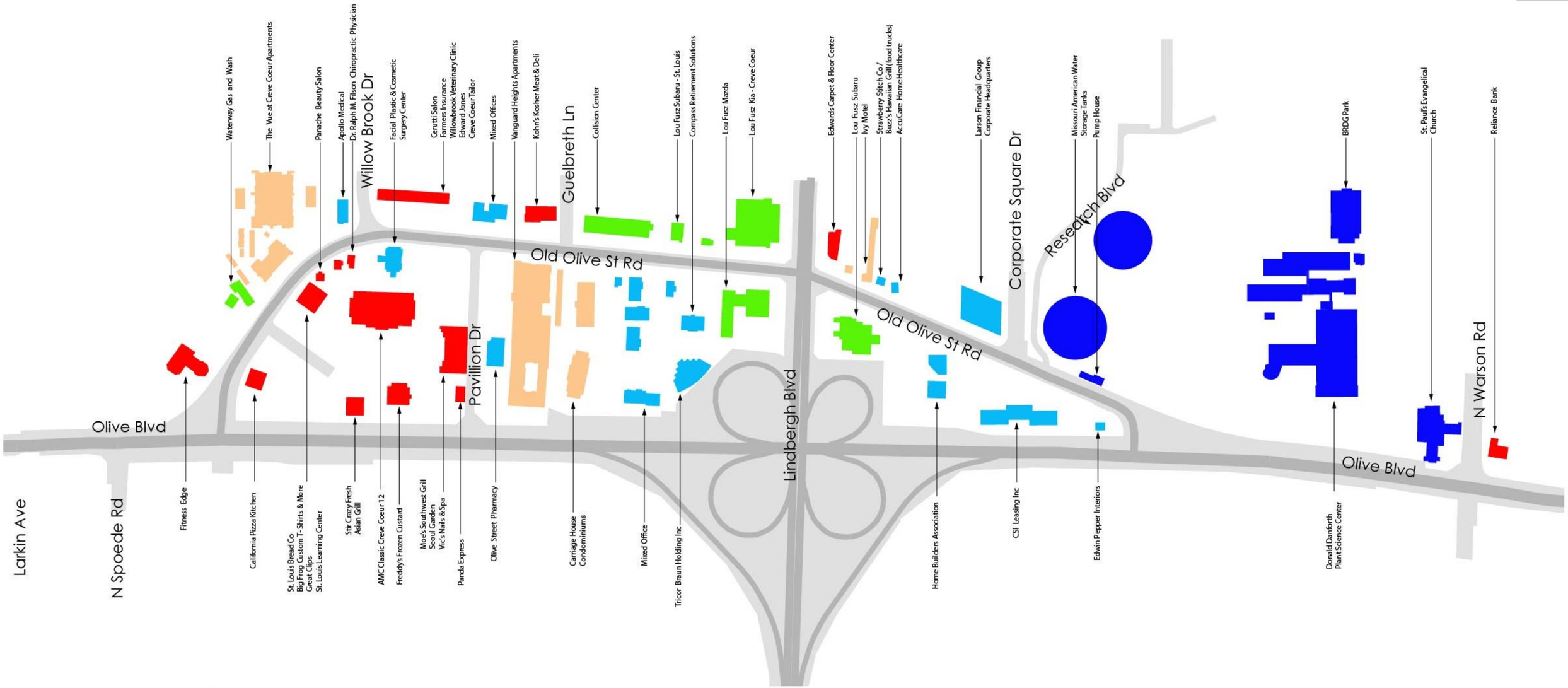
PLANNING CONTEXT

The Project Area

The corridor improvements are planned for Old Olive Street Road from Olive Boulevard on the west, through North Lindbergh Boulevard, and Old Olive Street Road on the east. Potential connector roads, west and east of Lindbergh Boulevard, connect Olive Boulevard through to Old Olive and break up the super block pattern. The west connector road has the potential to connect to Guelbreth Lane with a realignment through the Lou Fusz property.

This project area creates physical links between institutions, neighborhoods, businesses, and a developing bike/ped network of greenway and bike paths. Starting with the Olive/Lindbergh interchange construction in 2020, transformation is underway.



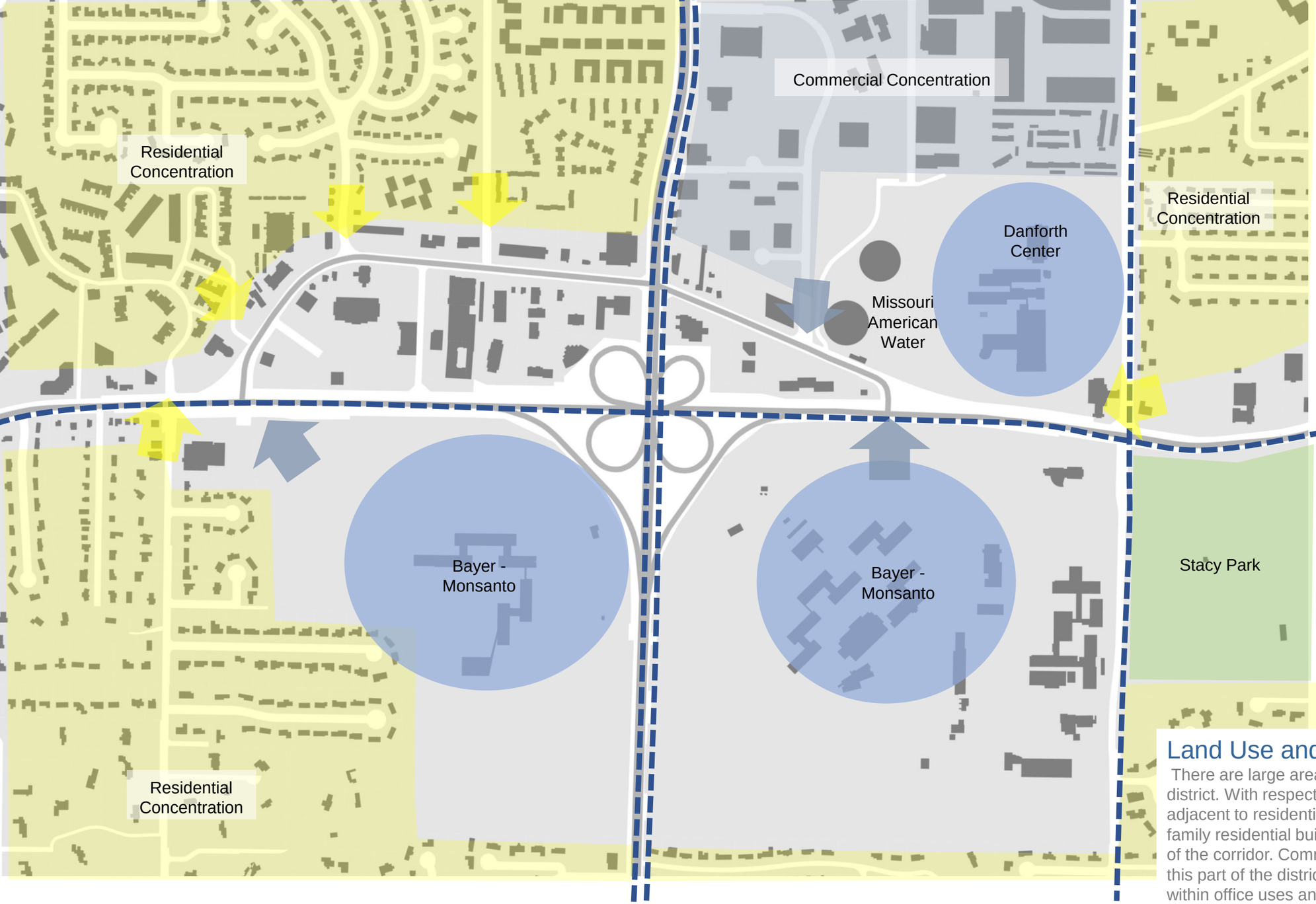


legend:

- apartment / hotel
- restaurant / commercial
- office
- instituitions / churches / infrastructure
- auto oriented business
- public realm / MODOT ROW

Business Inventory

The Old Olive corridor has a wide variety of existing uses including recently completed residential condos and apartments. Redevelopment projects that include residential is a trend towards the development patterns and users that is needed to transform the Old Olive corridor and 39° North district into a 18 hour place.



Land Use and Anchors

There are large areas of residential on either side of the 39°N district. With respect to Old Olive, the section west of Lindbergh, is adjacent to residential, both single family and multifamily. Two multi-family residential building have recently been developed on this side of the corridor. Commercial development already has a foothold in this part of the district. East of Lindbergh, the corridor is contained within office uses and connects to Corporate Square Drive that provides access to an existing business park. The character of these two sections of the corridor are very different. In addition, institutional anchors such Donald Danforth Plant Science Center and Bayer – Monsanto have a strong presence on the east side of the corridor. The logical location for commercial and mixed use development is east of Lindbergh.

COMMERCIAL FRONTAGE | STRIP COMMERCIAL FRONTAGE | DEVELOPING NEW CHARACTER | LOW-DENSITY COMMERCIAL | AUTO DEALER FRONTAGE | OLD OLIVE REMNANTS | SUBURBAN OFFICE PARK | VISIBLE INFRASTRUCTURE | OPEN/PUBLIC

Visual Street Character

To understand the existing conditions of the corridor, an analysis of the visual character was completed. Existing land uses and the pattern of development reveal a patchwork of newer and older 1950s development with an auto-oriented focus.

legend:

- existing sidewalk
- physical elements in right of way
- landscape buffers
- utility pole obstruction
- cross slope issue
- physical barrier

Right of Way Barriers

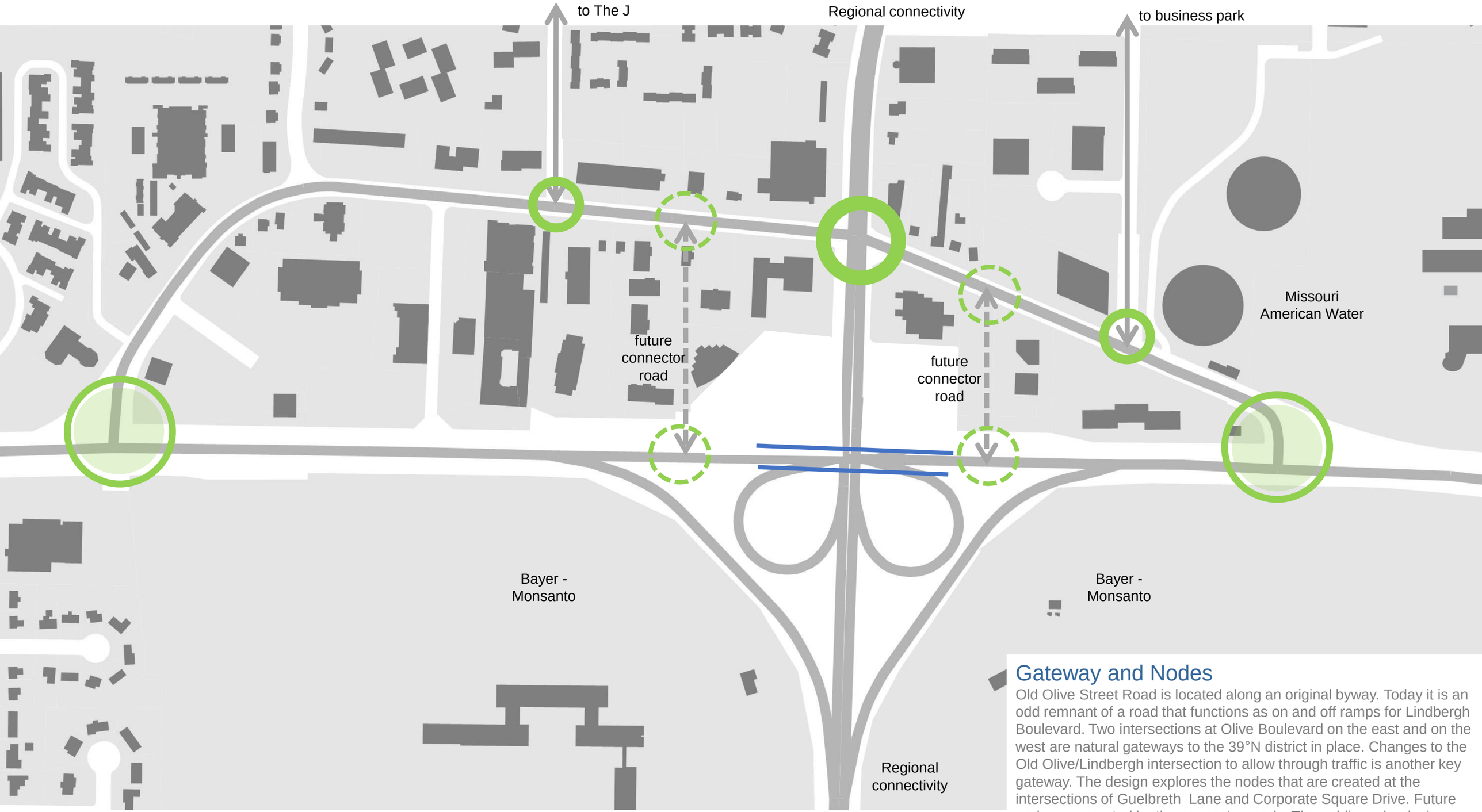
The right of way for the Old Olive corridor is 60' in width except where it widens out at the Olive Boulevard intersections on the west and east. Within this narrow corridor, a significant overhead electrical service is located on the north side of the corridor. This includes sub-transmission lines and is impractical to bury underground. Ameren will not allow lighting to be taller than 8' under the utility poles. There is no sidewalk on the north side of the corridor. The most significant barrier is the inability to cross Lindbergh due to physical barriers at this MoDOT Intersection.

legend:

- potential redevelopment site
- potential multiple use path route
- potential on-street parking
- potential greenway routes being studied
- commercial mixed use
- office/institutional
- public park

Redevelopment Framework

The framework plan documents initiatives from the master plan and other opportunities in order for the Old Olive concepts to be developed to facilitate a coordinated future. Redevelopment sites as indicated are areas of infill, site assembly, and land use change. Two key sites at the former northeast and northwest lobes of the cloverleaf interchange will be available for redevelopment with the completion of the interchange realignment in 2020.

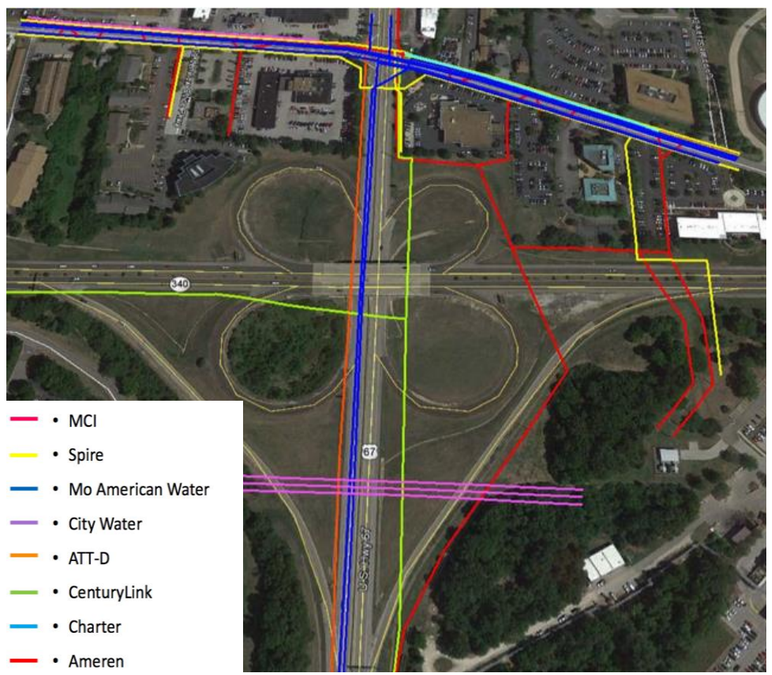


Gateway and Nodes

Old Olive Street Road is located along an original byway. Today it is an odd remnant of a road that functions as on and off ramps for Lindbergh Boulevard. Two intersections at Olive Boulevard on the east and on the west are natural gateways to the 39°N district in place. Changes to the Old Olive/Lindbergh intersection to allow through traffic is another key gateway. The design explores the nodes that are created at the intersections of Guelbreth Lane and Corporate Square Drive. Future nodes are created by the connector roads. The public realm design anticipates these opportunities.

UTILITY AND STORMWATER ASSESSMENT

UTILITY ASSESSMENT



Existing utilities at Old Olive, Olive and Lindbergh

Understanding Utility Impacts for Future Implementation

There are a significant number of existing buried and overhead utilities in the Old Olive right of way. As a high point in St. Louis County, Missouri American Water has a storage and pumping facility located on the east end of Old Olive. Five large diameter potable water lines ranging between 12” to 36” in diameter parallel the centerline of Old Olive within the right of way. As a result, these utilities and others are design drivers that put limitations on improvements that have deep footings such as light poles or are located in excavated areas such as bioretention and trees. The Design Team decided early to avoid deep excavation and to develop a design that can co-exist with the most of the utilities left undisturbed and in place.

A topographic and utility survey was completed in 2018 for the project area and included the potential corridors for the future connector roads. The known utilities include:

FIBEROPTIC - every major communications entity in the area has fiber optic along Old Olive. Spectrum facilities include 8”and 12” diameter buried ducts with multiple underground and aerial communications company’s facilities parallel the Old Olive right of way, primarily on the fringes. Communications include:

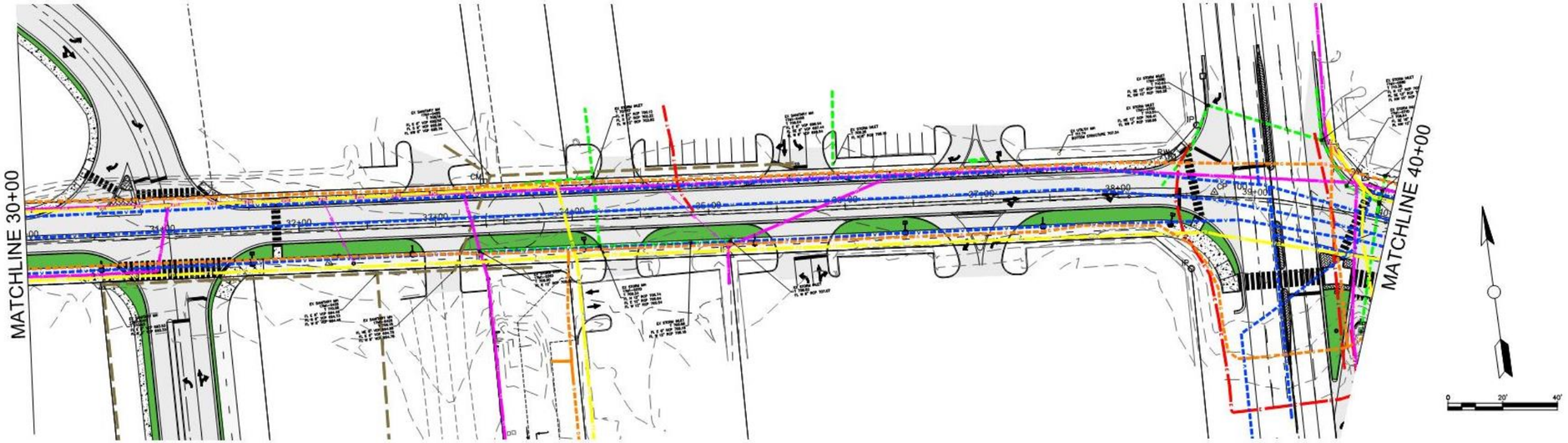
- ATT
- Verizon
- Spectrum
- Blue Bird
- CenturyLink

GAS – Spire gas lines parallel the right of way on the south and north sides of the right of way

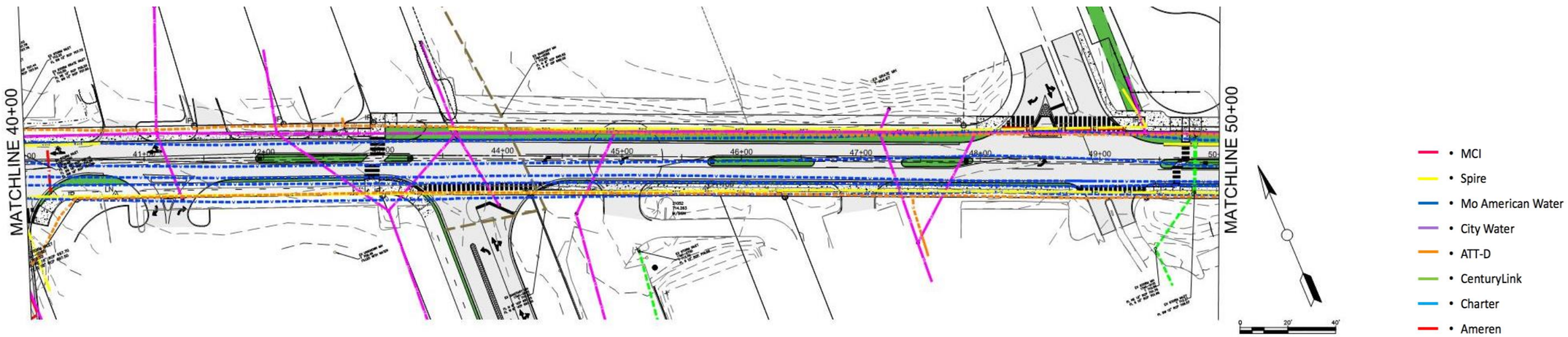
WATER - large water mains 12” to 36” diameter run along the entire corridor with more lines east of Lindbergh. Missouri American Water completed potholes on site to identify the exact location of their facilities that could be in conflict with new storm sewers in the construction document phase. The City of Creve Coeur may want to consider performing CC-TV on existing storm sewers in the final design phase to determine if any point repairs should be included when the road is reconstructed.

ELECTRIC – the majority of Ameren’s service is aerial along the entire corridor on the north side of Old Olive with 34kV and 12kV/4kV distribution lines. Burying these facilities would cost upward of $6 million per mile, therefore the facilities on the north side are anticipated to remain in place with minor adjustments. Many of the service lines that span the right of way and occupy the south side of the R/W may be feasible to place underground when construction is under way. It should be noted that new service taps with underground facilities, as opposed to aerial facilities, will be more expensive for future developers.

Although this survey was comprehensive, the exact locations of underground infrastructure cannot be known without pavement removal called potholing. Additional potholing will be required in implementation phases to determine the locations of all utilities such as gas, storm sewer, sanitary sewer, and communications.



Utilities in Old Olive right of way west of Lindbergh



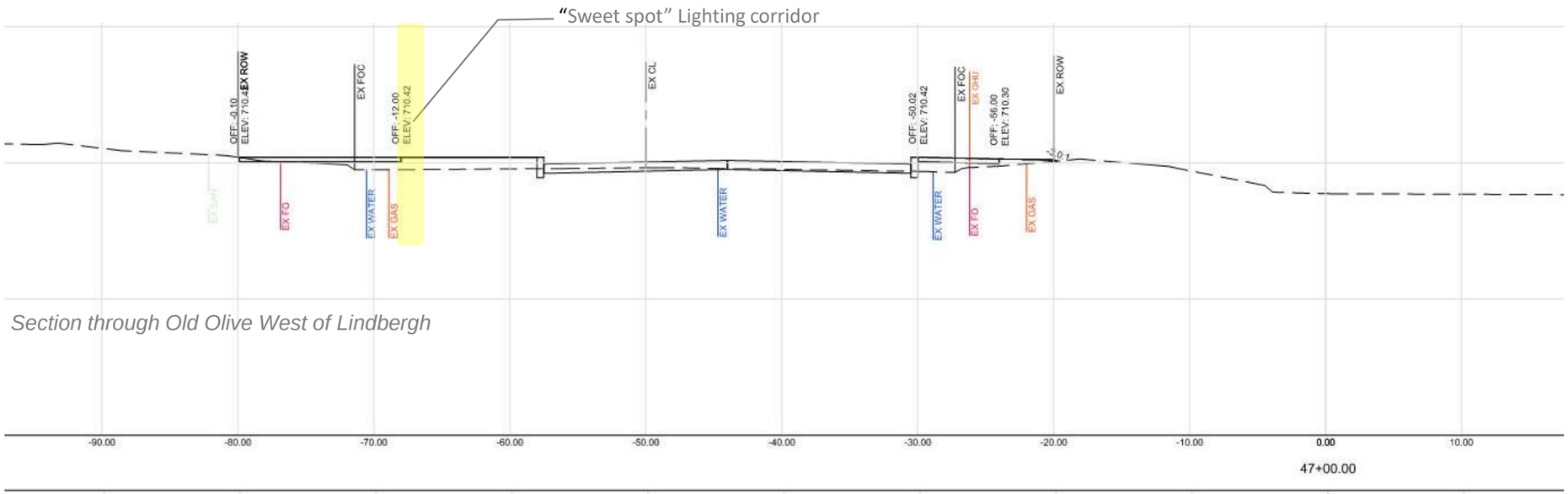
Utilities in Old Olive right of way east of Lindbergh

Utilities West and East of Lindbergh

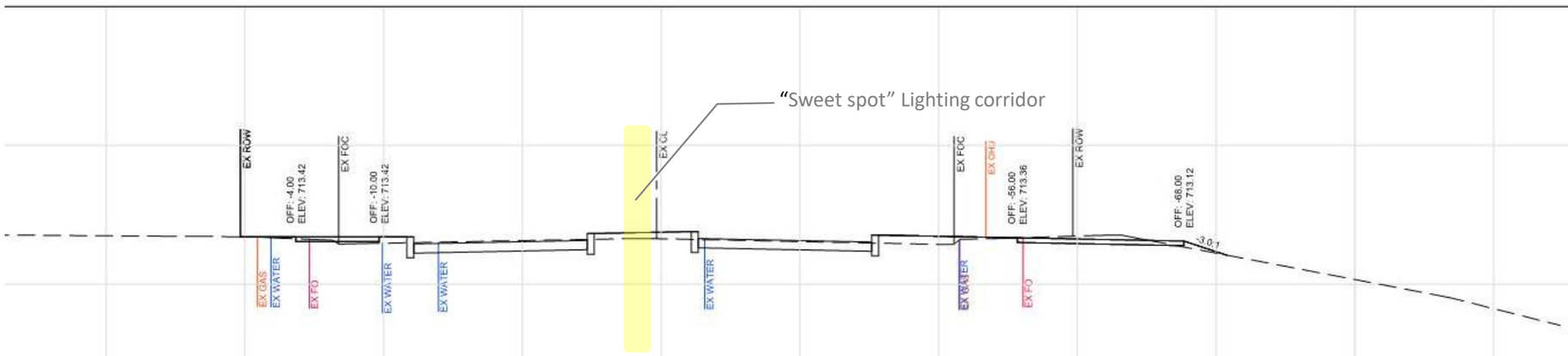
The utility condition is different west and east of Lindbergh. The corridor design has been coordinated to respond.

WEST SIDE: with the new road alignment, many of the utilities fall under the north sidewalk area, the center of the road, and under the south shared use path. The area north of the shared use path and the south curb is less encumbered – providing a place for lighting and trees.

EAST SIDE: with the new road alignment here, the utilities fall under the north sidewalk area, the center of the road, and fill the area between the south curb and south right of way line. The medians are located over large water mains but it is likely that locations for lighting and trees will be able to be determined with additional investigation.



Section through Old Olive West of Lindbergh

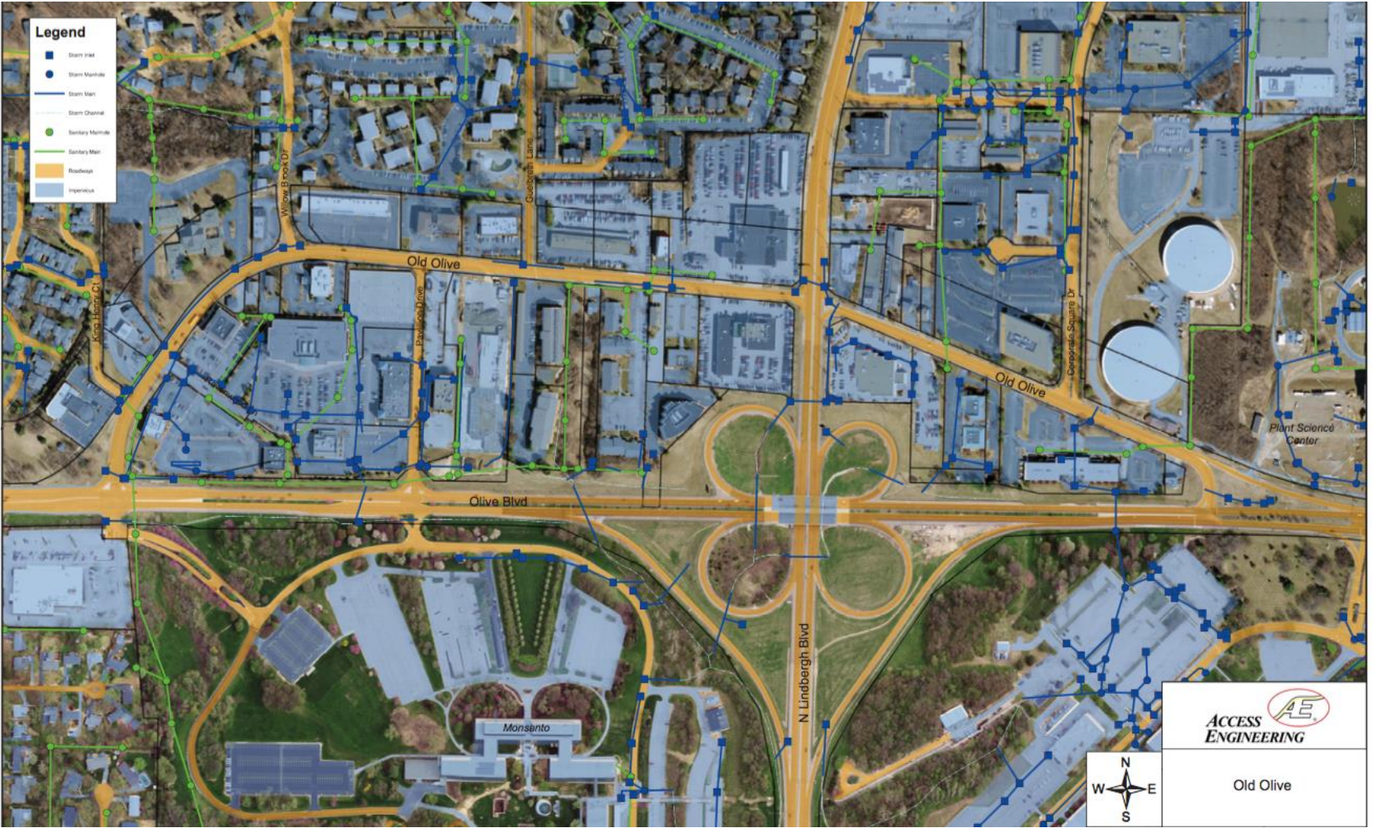


Section through Old Olive East of Lindbergh

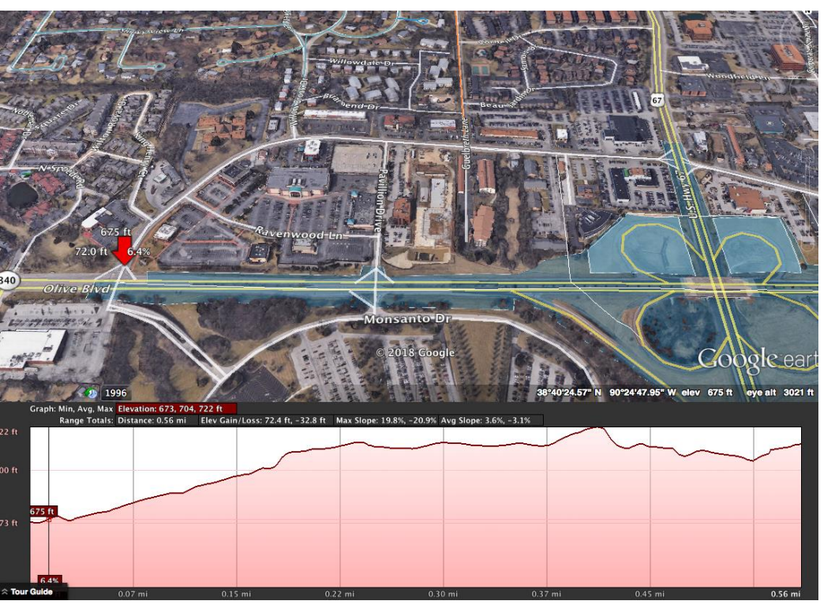
UTILITIES

Representative section cuts along the right of way illustrate the density of utilities. Improvements such as footings, porous paving, bioretention, etc. that require excavation and below-grade capacity are limited along a majority of the corridor.

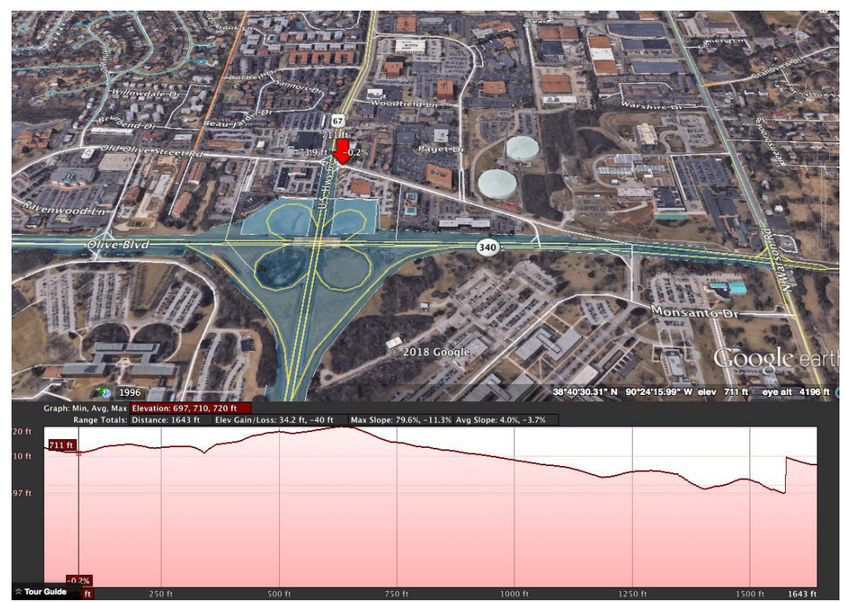
A 4' wide corridor for lighting has been established on the south side of the right of way, west of Lindbergh. East of Lindberg, the lighting corridor is in a median in the middle of the road.



Impervious area map



Slope of Old Olive west of Lindbergh



Slope of Old Olive east of Lindbergh

Grading and Impervious Area

The majority of the Old Olive right of way runs along a topographic ridge. As a result, little to no off-site water flows on to the road. This is beneficial because the storm sewer network is fairly sparse and cannot be extended easily throughout the majority of the alignment due to the number of large and shallow potable water lines that occupy the right of way. Many of the sections of curb are extremely low in profile, most likely due to overlays over the years. Many of the storm sewer inlets are grate inlets without side intakes.

The majority of the developed area on either side of the Old Olive corridor is comprised of impervious roofs and parking lots as is typical for suburban development. With respect to the lay of the land, there is a plateau on either side of Lindbergh and then the grade slope west or east towards Olive Boulevard. The design of the public realm for the Old Olive corridor seeks to reduce the imperious area and storm water run off.

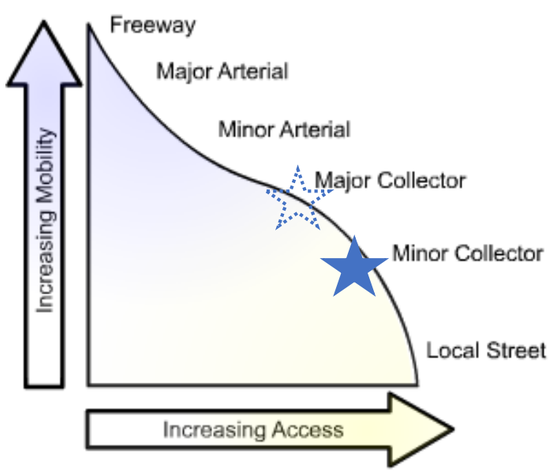
Drainage areas have been delineated and spread calculations have been performed to assess the efficacy of existing storm sewer network and the potential for its reuse when the road is improved. It appears that existing storm sewers can be used for stormwater management with minor additions and modifications. It may to be feasible to expand the network between Ravenwood and Olive where spread calculations indicate additional inlets would be beneficial.

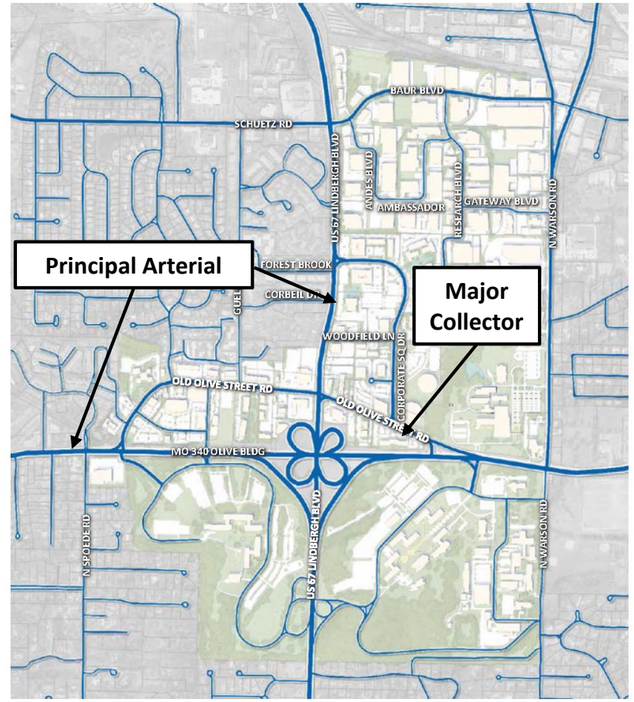
TRANSPORTATION ASSESSMENT

TRANSPORTATION ASSESSMENT

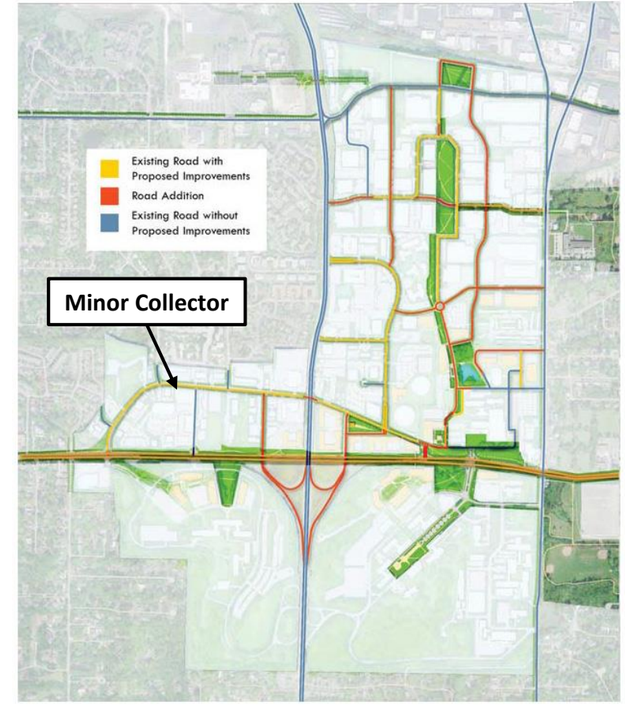
Changing the Function and Character of Old Olive Street Road

Today, Old Olive is a MoDOT owned and maintained road. The classification of this road is “Major Collector.” This means that the road is a designed to accommodate low to moderate traffic and move traffic from local streets to arterial roads such as Lindbergh Boulevard and Olive Boulevard. In its current role, Old Olive moves traffic efficiently to other roads, has limited access, and a lack of connectivity through the Old Olive/Lindbergh intersection. This is not the right classification of road for the future of the 39°N district as a bike/ped friendly place and an 18 hour district. The good news is that Old Olive can be reclassified and redesigned as a Minor Collector to serve the needs of the district in the future when it no longer needs to serve as on and off ramps for Lindbergh Boulevard. With the reconfiguration of the Olive/Lindbergh interchange to be completed in 2020, Old Olive can be vacated and ownership and maintenance assumed by the City of Creve Coeur. The assessment of the future traffic counts and patterns has determined that Old Olive can function as a two-lane road. Therefore, goals for sidewalks, shared use trail, and other bike/ped amenities can be accomplished.





Existing roadway system



Proposed roadway system

Title
St. Louis County, Missouri

Exhibit 3: Average Daily Traffic Volumes - Existing Conditions

Job# 033-18
06/22/18

Vehicle Movement – Existing Daily Traffic Volumes

Old Olive east

Old Olive west

Vehicle Origin to Destination for WB Old Olive Street Road West to WB Olive Boulevard

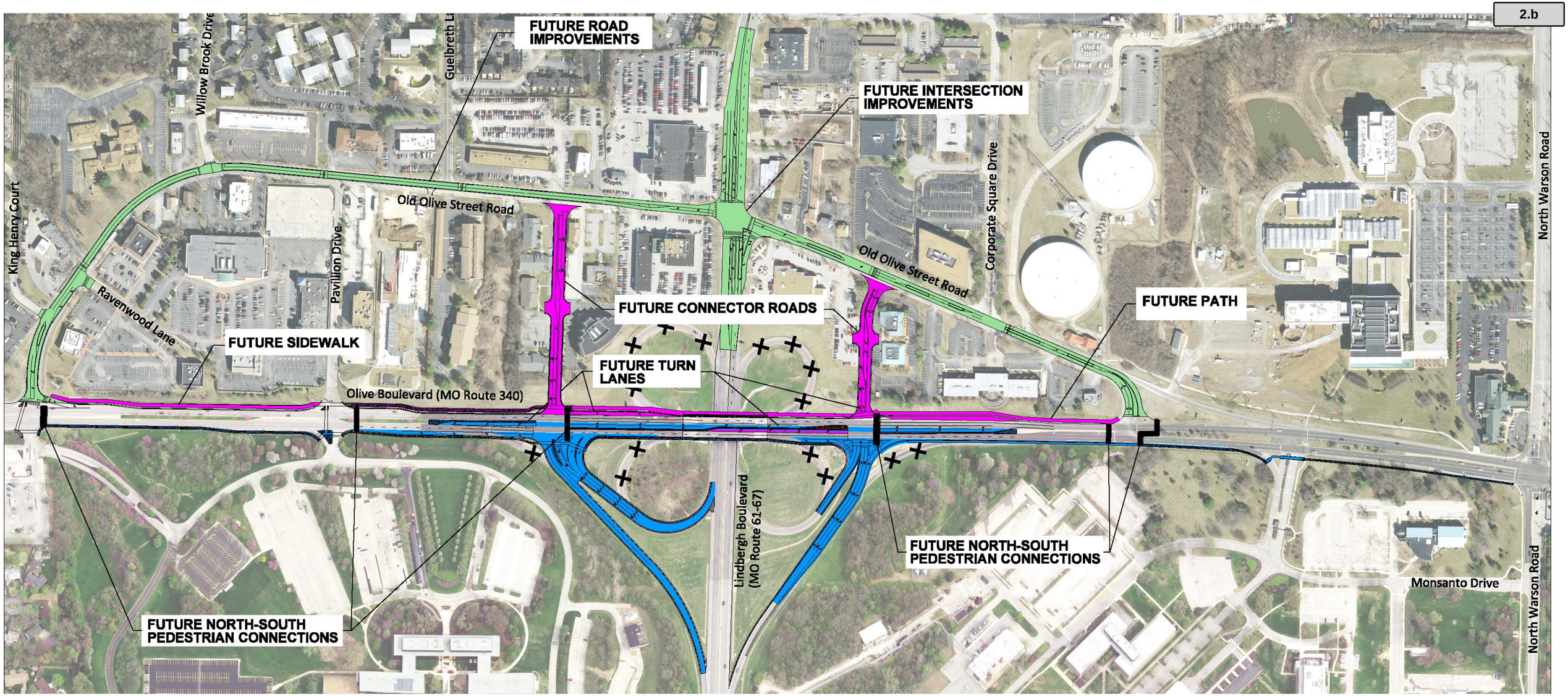
Intersection/Approach	AM Peak Hour	Midday Peak Hour	PM Peak Hour
To WB Olive Boulevard	70%	70%	75%
Not to WB Olive Boulevard	30%	30%	25%

Vehicle Origin to Destination for WB Old Olive Street Road East to NB Lindbergh Boulevard

Intersection/Approach	AM Peak Hour	Midday Peak Hour	PM Peak Hour
To NB Lindbergh Boulevard	10%	25%	80%
Not to NB Lindbergh Boulevard	90%	75%	20%

Vehicle Movement
Existing Daily Traffic Volumes and Origin and Destination

The study looks at the existing traffic volumes with the existing function of the road as on and off ramps for Lindbergh. Today, anywhere from 1,500 to 5,000 cars travel Old Olive per day. The study indicates that these numbers drop off as vehicles turn off for Corporate Square Drive, Lindbergh Boulevard, and Guelberth indicating that Old Olive is functioning like the Major Collector road that it is. With removal of that function, the data indicates that the road can be modified to a two-lane road with a 25 mph posted speed limit.



Olive/Lindbergh Interchange project and future phasing

Improvements to the Olive/Lindbergh Interchange Provide Opportunities for Old Olive

The first project to be implemented from the 39°N Master Plan is the reconfiguration of the Olive/Lindbergh interchange. This project involves removing the two north lobes of the existing cloverleaf interchange. The turning movements will be moved to the south side of Olive in a new interchange type called a folded diamond. Two new signalized intersections will be created at each intersection of the on/off ramps and Olive Boulevard. The project will be constructed in 2020 and the scope of the project is indicated by the blue areas.

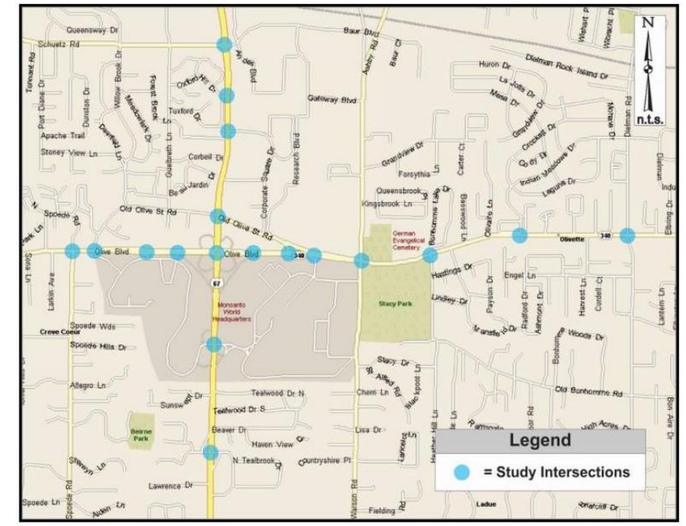
This project is very important to realizing the goals of the Old Olive corridor by eliminating the function of Old Olive as on/off ramps for Lindbergh. When complete, a full access intersection at Old Olive/Lindbergh can be created, Old Olive can be reconfigured for slower traffic, bike/ped improvements can be integrated, and the area can be reimagined as a mix-use district.

The other future opportunities include the creation of two development sites north of Olive, the development of the connector roads, and the bike path along Olive shown in pink. The connector roads are positioned at the new signalized intersections and provide access to the development sites. The also provide additional redevelopment frontage and break up the “super block” aspect of the Old Olive corridor. The actual location of the connector roads have not been determined at this time.

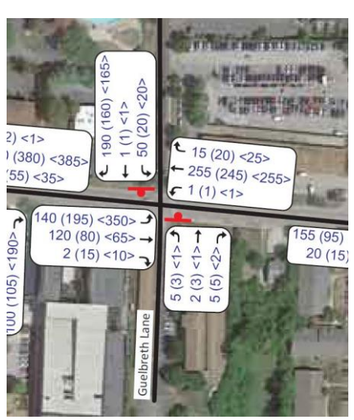
Title
St. Louis County, Missouri

Exhibit 1: Existing Traffic Volumes

Job# 033-18
06/22/18



Traffic count scope



Guelbreth Lane

Corporate Square Drive

Turning Movement Volumes

This study looks at traffic volumes in the context of turning movement to determine the location of turn lanes in the roadway design even though the convertible section will accommodate turn lanes in the future. In the current design, the space is focused on bike/ped amenities where turn lanes are not warranted. The only turn lane warrant at this time is at the Old Olive/Corporate Square Drive intersection to accommodate existing volumes of office workers and the anticipated increase in traffic volumes with the redevelopment of the office park as an ag-tech district.
.

In the future, it is anticipated that the Old Olive/Guelbreth intersection could warrant a signalized intersection with left turn lanes particularly if the west connector road is aligned with Guelbreth.

Other key intersections include the Old Olive/Willowbrook and the Old Olive/Pavilion Drive intersections. The Willowbrook intersection will have an all-way stop while the pavilion drive will have demarked crosswalks.

Old Olive Great Street Study
St. Louis County, Missouri

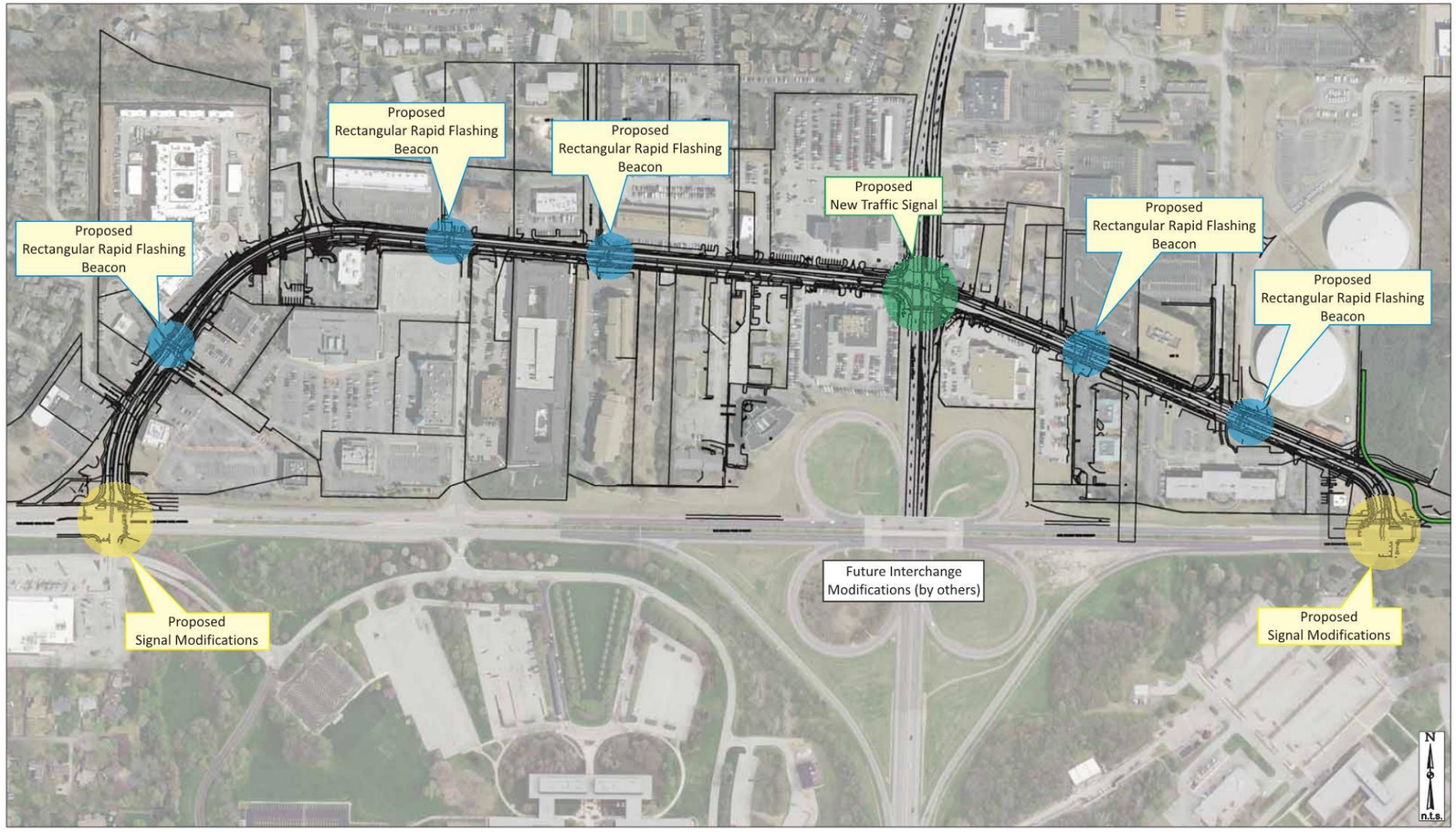


Figure A: Traffic Signal Elements

Job# 033-18
01/23/19

Traffic Signal Recommendations

Rectangular Rapid Flashing Beacon

Signalization

The recommendation for signals and crossings is illustrated on the map and include the following:

1) Signal Modifications – located at Old Olive west and Old Olive east and indicated by yellow.
2) Unsignalized Bike/Ped Crossing - located at designated bike/ped crossings where crosswalks are shown. Rectangular Rapid Flashing Beacons (RRFB) are proposed in these locations to warn drivers that cyclists and pedestrians are present. Indicated by blue on the drawing.
3) Proposed New Traffic Signal – located at Old Olive and Lindbergh. This will be a full access intersection with left turns at all four corners. Indicated by green on the drawing.

Old Olive Great Street Study
St. Louis County, Missouri

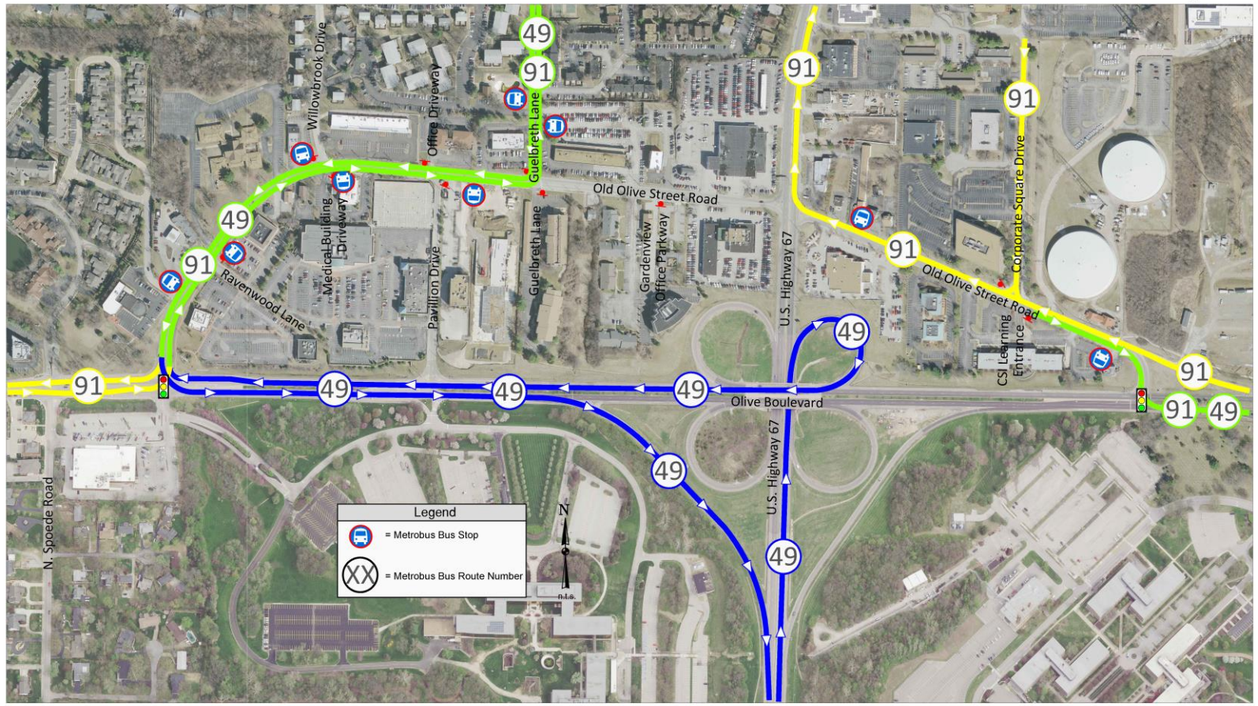


Exhibit 5: Existing Bus Routes

Job# 033-18
06/22/18

Old Olive Great Street Study
St. Louis County, Missouri

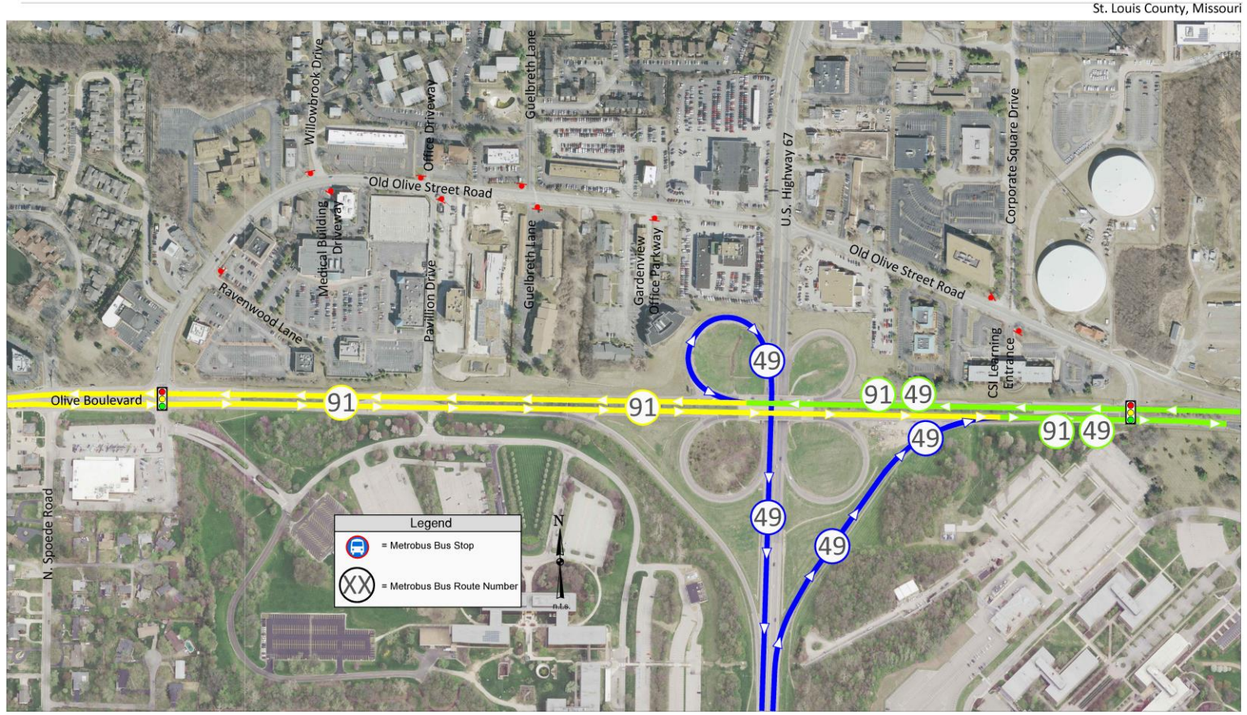


Exhibit 6: Metro Reimagined Bus Routes

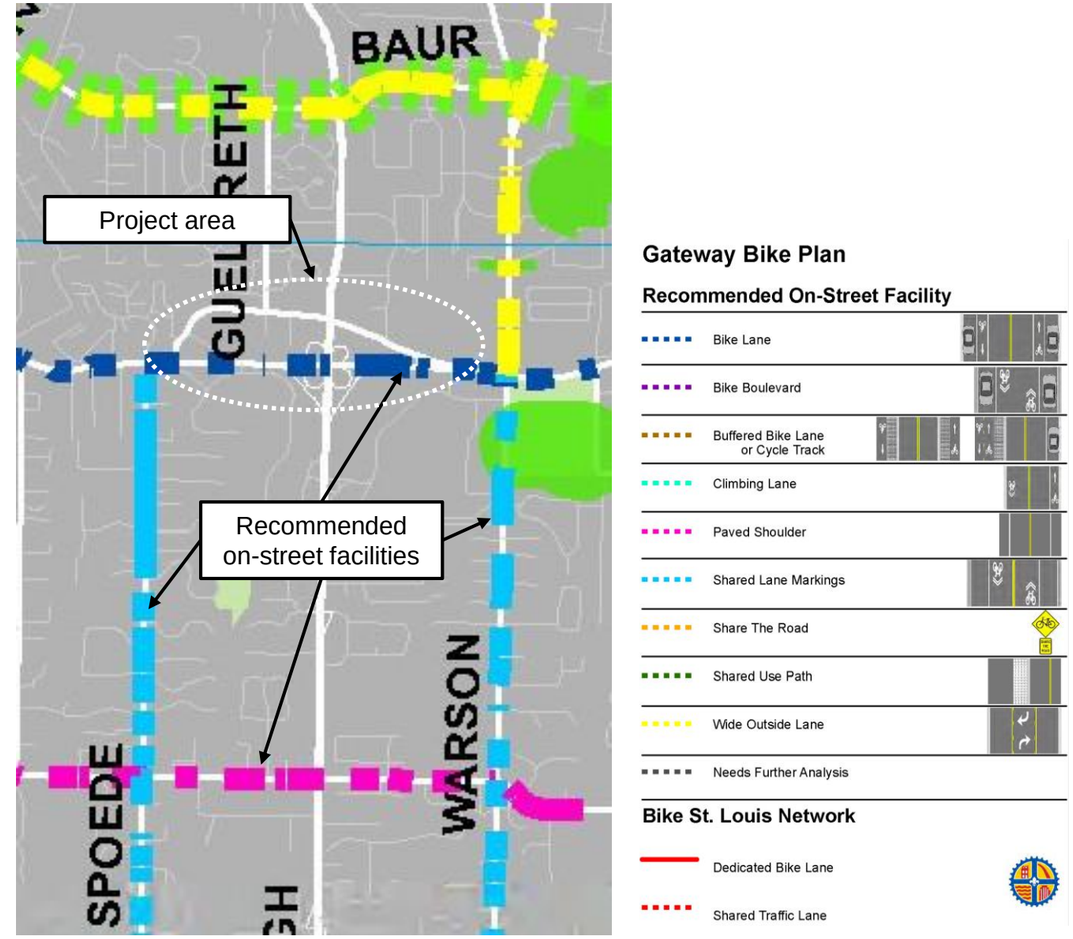
Job# 033-18
06/22/18

Existing artist-designed bus shelter on Old Olive

Existing and Future Bus Transit

Today, two Metro bus routes, Bus 91 and Bus 49, serve the district and travel on Old Olive directly. Due to the lack of access across Lindbergh, the buses take circuitous routes to go north on Guelbreth to The J and back. Metro continues to change their routing and is proposing to eliminate the Old Olive and Guelbreth routes. As the district develops it will be important for the City of Creve Coeur and stakeholders like The J to advocate for direct bus access in the district.

Great Rivers Greenway Map of greenways near project site

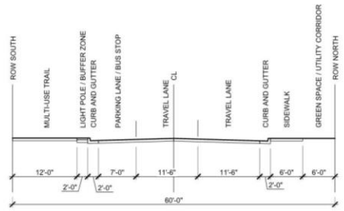


Bike St. Louis Map

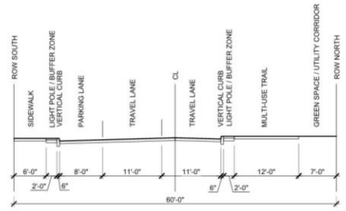
Regional Bike/Ped Initiatives

Two types of bicycle facilities will serve the district in the future. These include:

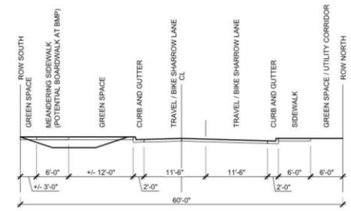
1) Greenways – off road facilities for cyclists and pedestrians. A greenway is being studies by SLEDP to travel north in the 39°N district. Centennial Greenway is being developed by Great Rivers Greenway and will travel east west from Forest Park to Creve Coeur Lake Park.
2) On-street Facilities – are documented in the Bike St. Louis plan. They include on-street bike lanes and shared lane markings. Great Rivers Greenway is also involved in implementation of these facilities.



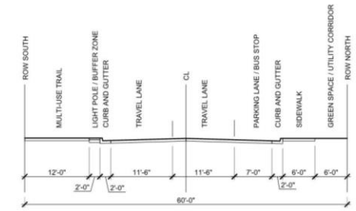
TEMPLATE 1a - MULTI-USE TRAIL ON SOUTH SIDE



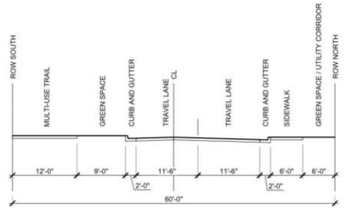
TEMPLATE 4b - MULTI-USE TRAIL ON NORTH SIDE, ON-STREET PARKING ON SOUTH SIDE



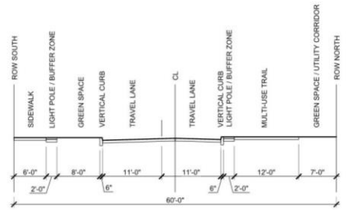
TEMPLATE 5a - LINEAR PARK ON SOUTH SIDE



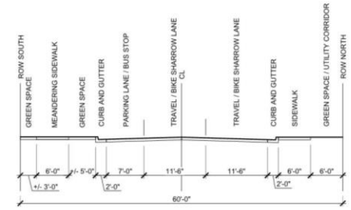
TEMPLATE 6c - MULTI-USE TRAIL ON SOUTH SIDE WITH PARKING ON NORTH SIDE



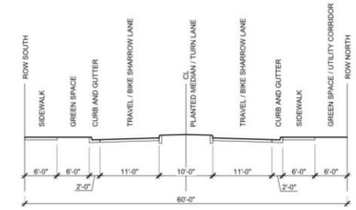
TEMPLATE 1b - MULTI-USE TRAIL ON SOUTH SIDE, NO ON-STREET PARKING



TEMPLATE 4c - MULTI-USE TRAIL ON NORTH SIDE, GREEN SPACE ON SOUTH SIDE

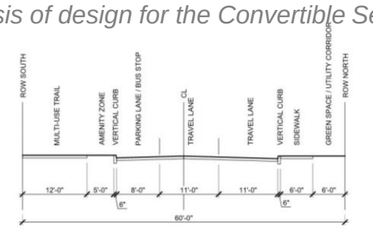


TEMPLATE 5b - LINEAR PARK ON SOUTH SIDE AT ON-STREET PARKING / BUS STOP

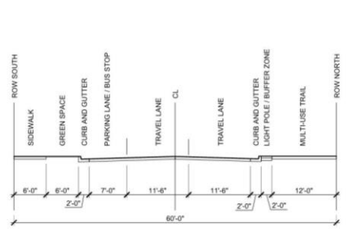


TEMPLATE 7 - PLANTED MEDIAN

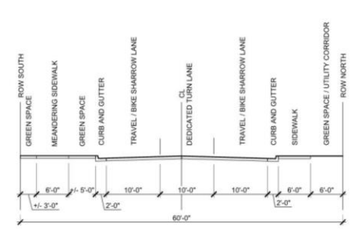
Basis of design for the Convertible Section



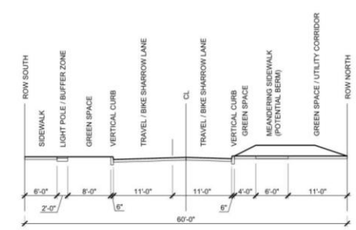
TEMPLATE 2 - MULTI-USE TRAIL AND AMENITY ZONE ON SOUTH SIDE



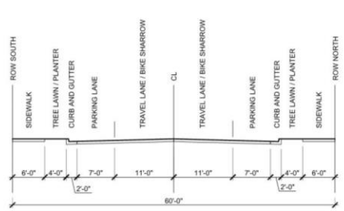
TEMPLATE 4d - MULTI-USE TRAIL ON NORTH SIDE (TIGHT), ON-STREET PARKING ON SOUTH SIDE



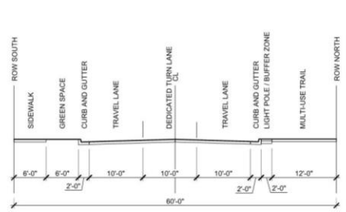
TEMPLATE 5c - LINEAR PARK ON SOUTH SIDE WITH DEDICATED TURN LANE



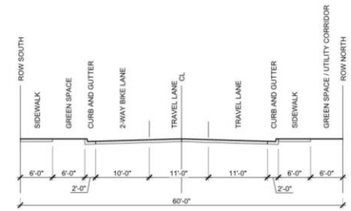
TEMPLATE 8a - LINEAR PARK ON NORTH SIDE



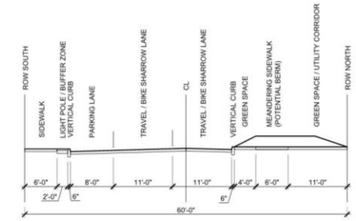
TEMPLATE 3 - MASTER PLAN / CITY 2030 PLAN



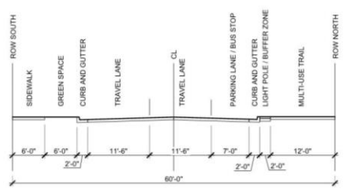
TEMPLATE 4e - MULTI-USE TRAIL ON NORTH SIDE (TIGHT) WITH DEDICATED TURN LANE



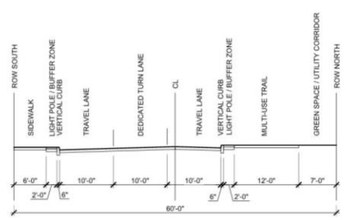
TEMPLATE 6a - SEPARATED ZONES



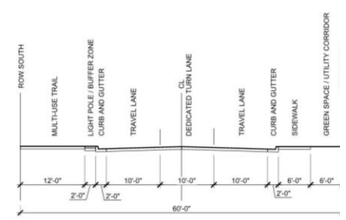
TEMPLATE 8b - LINEAR PARK ON NORTH SIDE, ON-STREET PARKING ON SOUTH SIDE



TEMPLATE 4a - MULTI-USE TRAIL ON NORTH SIDE (TIGHT)



TEMPLATE 4f - MULTI-USE TRAIL ON NORTH SIDE WITH DEDICATED TURN LANE



TEMPLATE 6b - MULTI-USE TRAIL ON SOUTH SIDE WITH DEDICATED TURN LANE

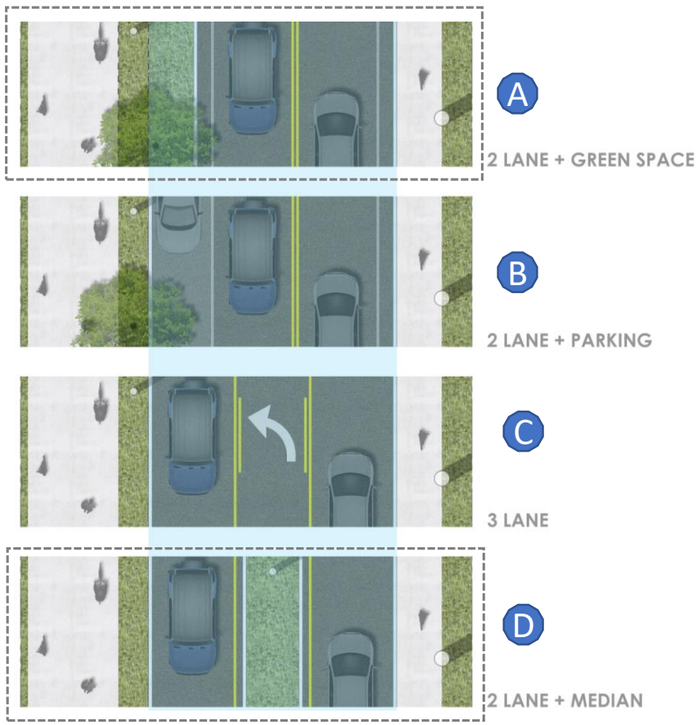
Old Olive Section Studies

Many sections for the proposed corridor were studied to determine the optimal configuration. The potential for on-street parking was considered at this time. The selected section needed to address the following criteria:

1) Two-lane road with ability to accommodate turn lanes in the future
2) Work around the utility poles on the north side
3) Integrate a great off-road bike/ped facility
4) Core improvements fit in the 60' right of way
5) Minimize need for additional right of way
6) Major water and electrical utilities remain in place
7) Federal funding eligible

CORRIDOR DESIGN

CORRIDOR DESIGN



The Convertible Section

When planning the corridor, many factors had to be considered including the immovable utility poles on the north side of the corridor and an extensive network of underground utilities. The Convertible Section was developed to accommodate aspirations for the corridor for an off-road bike/ped facility as well as future-proofing the design to anticipate turn lanes and other needs in the future as the intensity of use and land uses evolve.

The Convertible Section is made up of a 33' wide design section that provides for travel lanes, turn lanes, on-street parking, and pedestrian/landscape amenities at its full potential. It also creates corridors for existing and new infrastructure such as light poles and storm sewer. Within the tight constraints of the 60' right of way, it strikes a good balance between vehicular, pedestrian and cycling needs.

Convertible options accommodated:

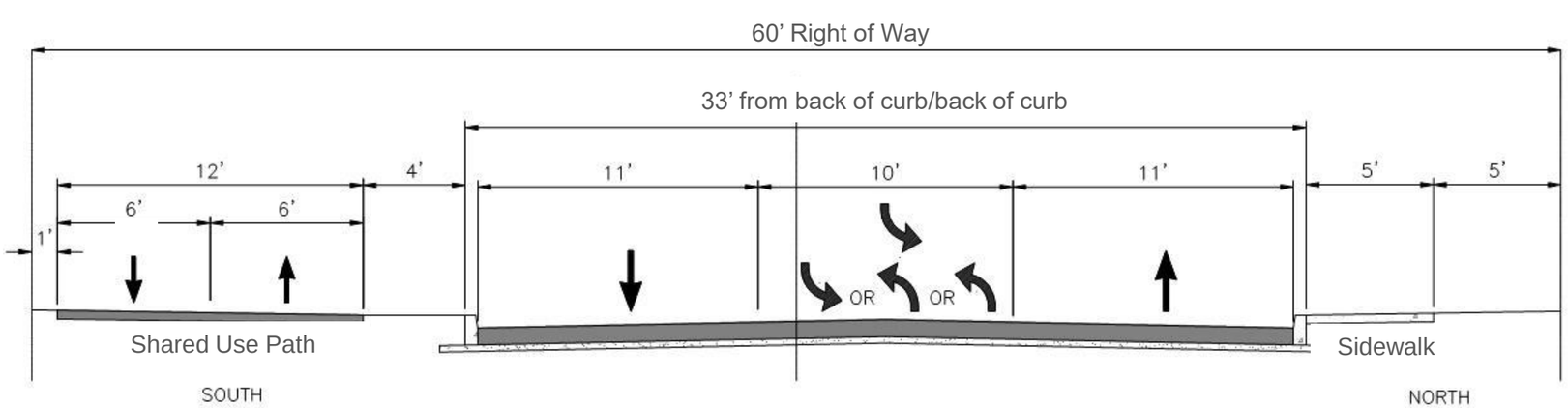
- On-street parking for current or future demand
- Left turn lanes for current or future demand
- Center medians for bike/ped refuge
- Water quality BMP – amended soils in landscape areas in green space
- Flexibility to meet a variety of different needs with the same physical footprint.

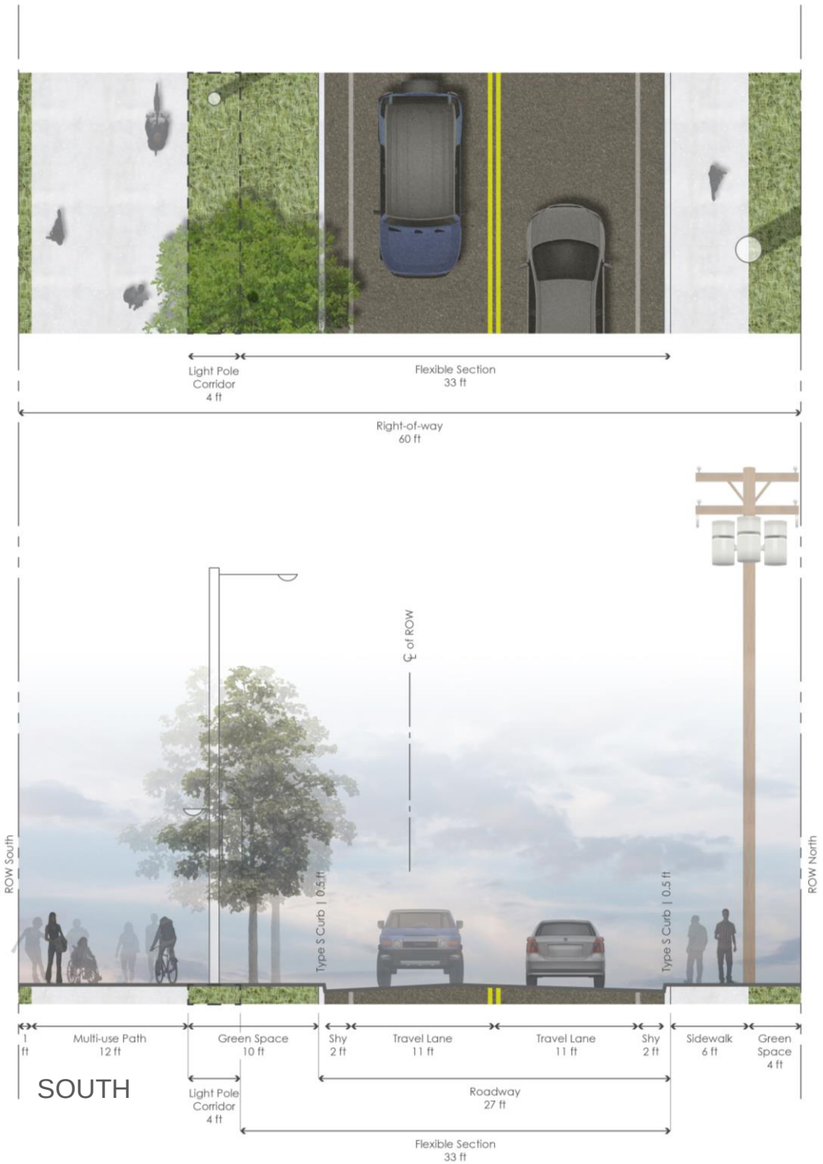
The four configurations for the corridor are shown in plan view to the left. The convertible section works with the following parameters:

- The north curb line is in the same location in all of the sections
- The south curb line is in the same location for all but the 2-lane + green space
- This road design allows for future flexibility to add turn lanes and/or a signalized intersection

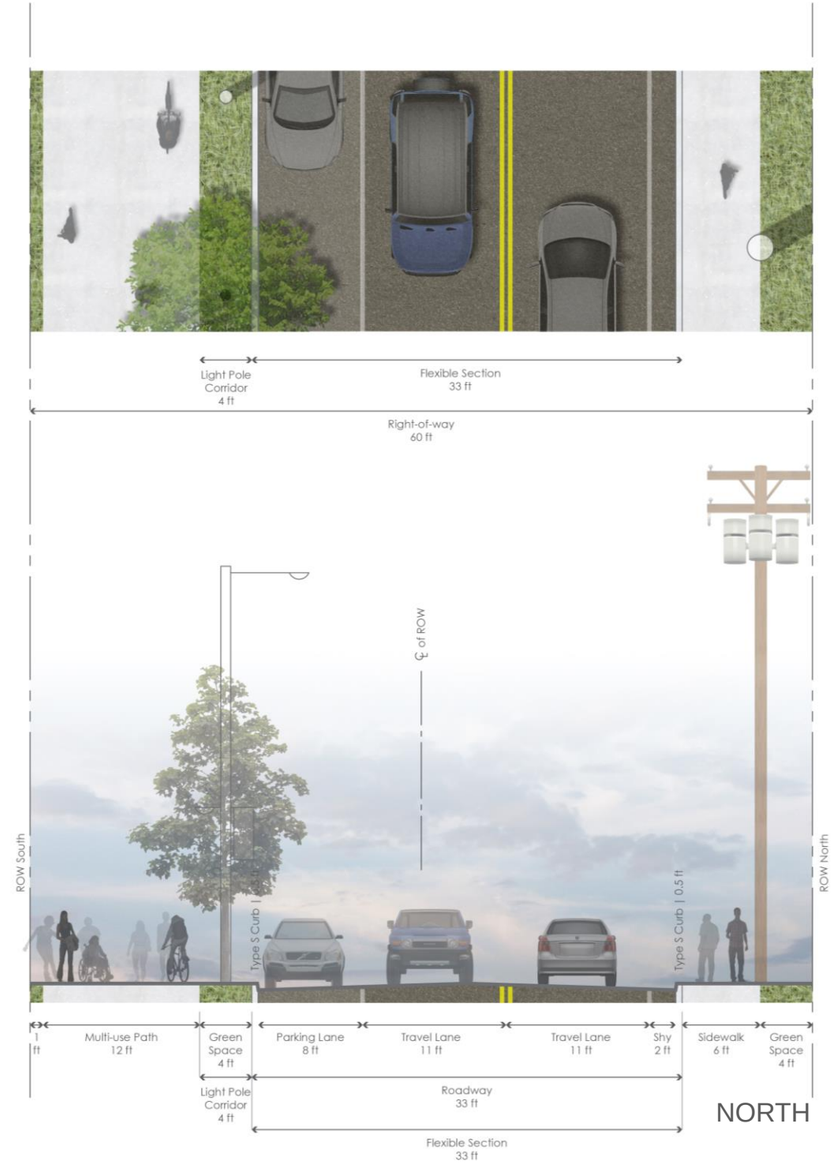
With the projected volumes of traffic on Old Olive and when the off and on-ramp function is removed, the corridor can function as a two-lane road. West of Lindbergh Boulevard, Configuration A is planned. East of Lindbergh, Configuration D is planned.

This corridor design gives the City of Creve Coeur the flexibility in the future to address future needs through the transformation of the 39°N district.





A 2 LANE + GREEN SPACE

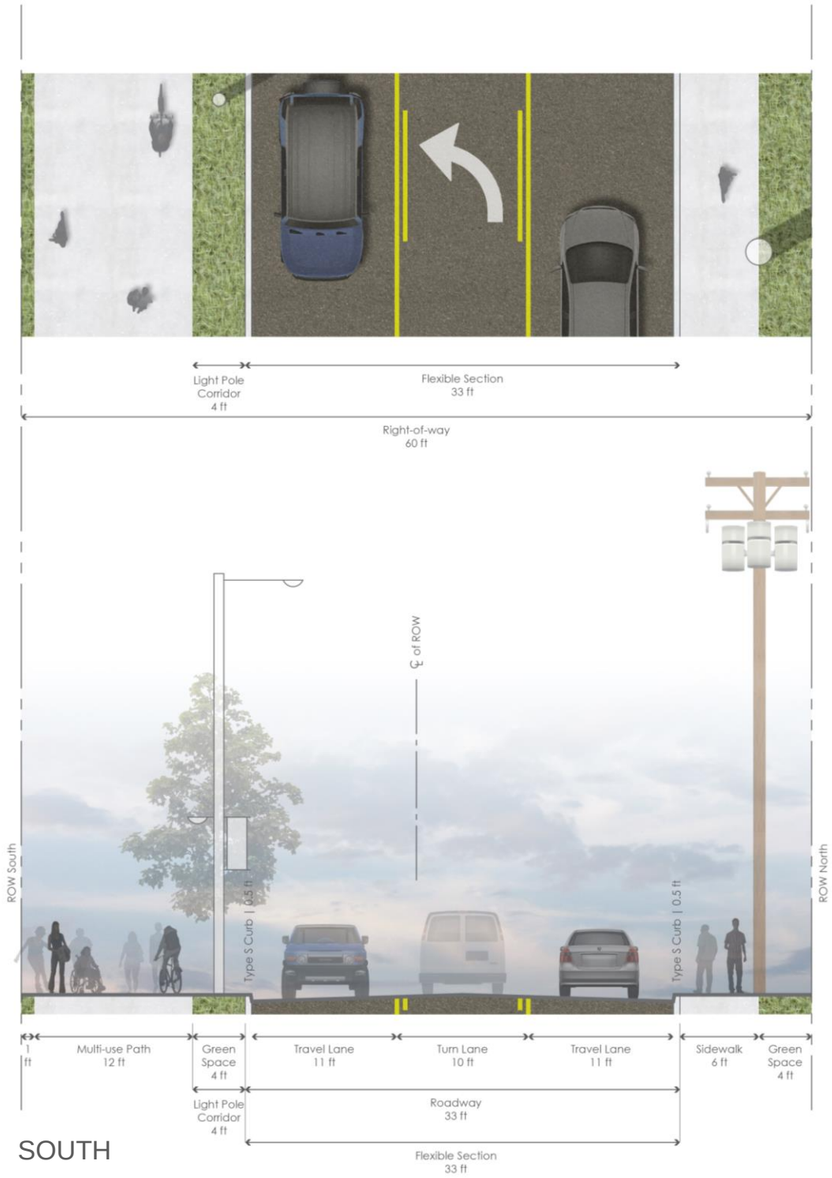


B 2 LANE + PARKING

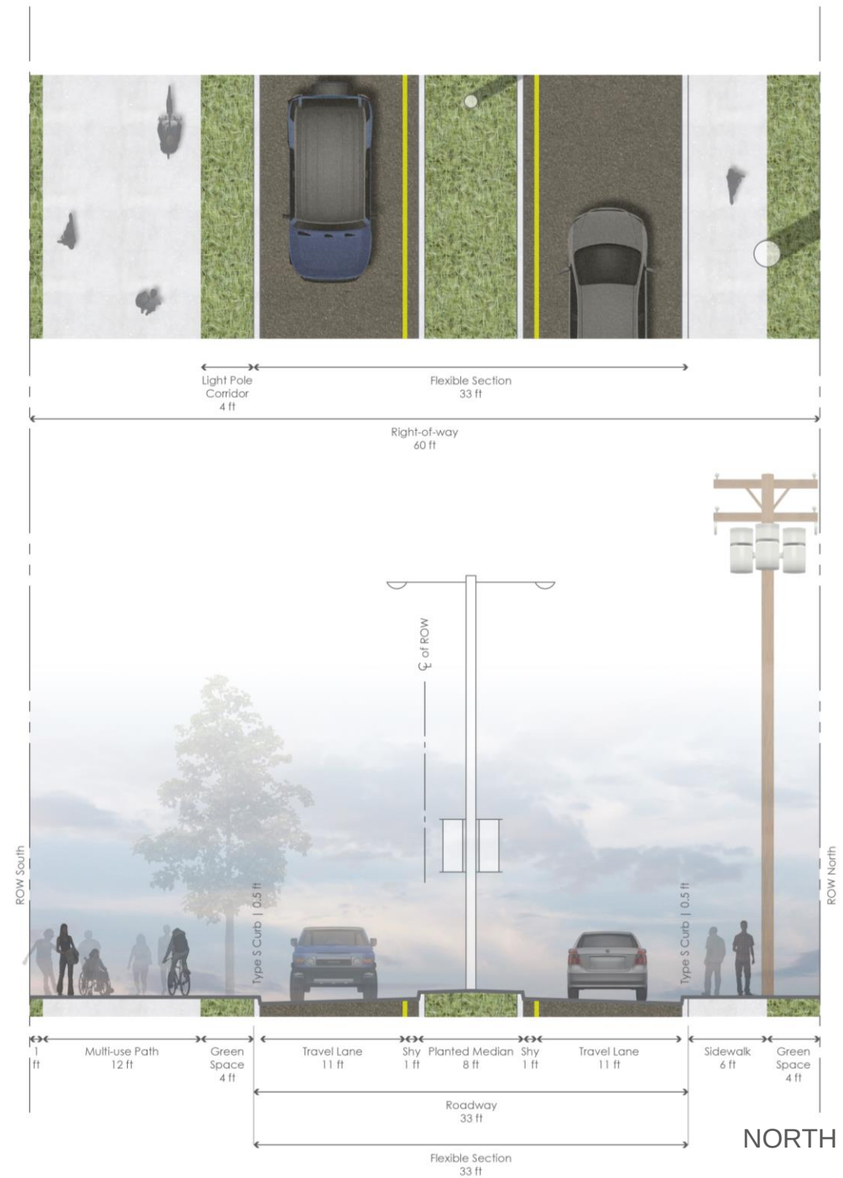
The Convertible Section

For configurations A and B, the only difference is the potential for on-street parking to be accommodated in the green space on the south side of the corridor. On-street parking is not currently desired or practical due to the lack of businesses fronting the street. This space is better used for pedestrian amenities. Features of A and B include:

- Old Olive will function as a two-lane road
- A shaded use path is located on the south side
- A pedestrian sidewalk is located on the north side
- Green space on the south side is a used as a lighting and landscape corridor
- Section converts to accommodate on-street parking in desirable areas



C 3 LANE

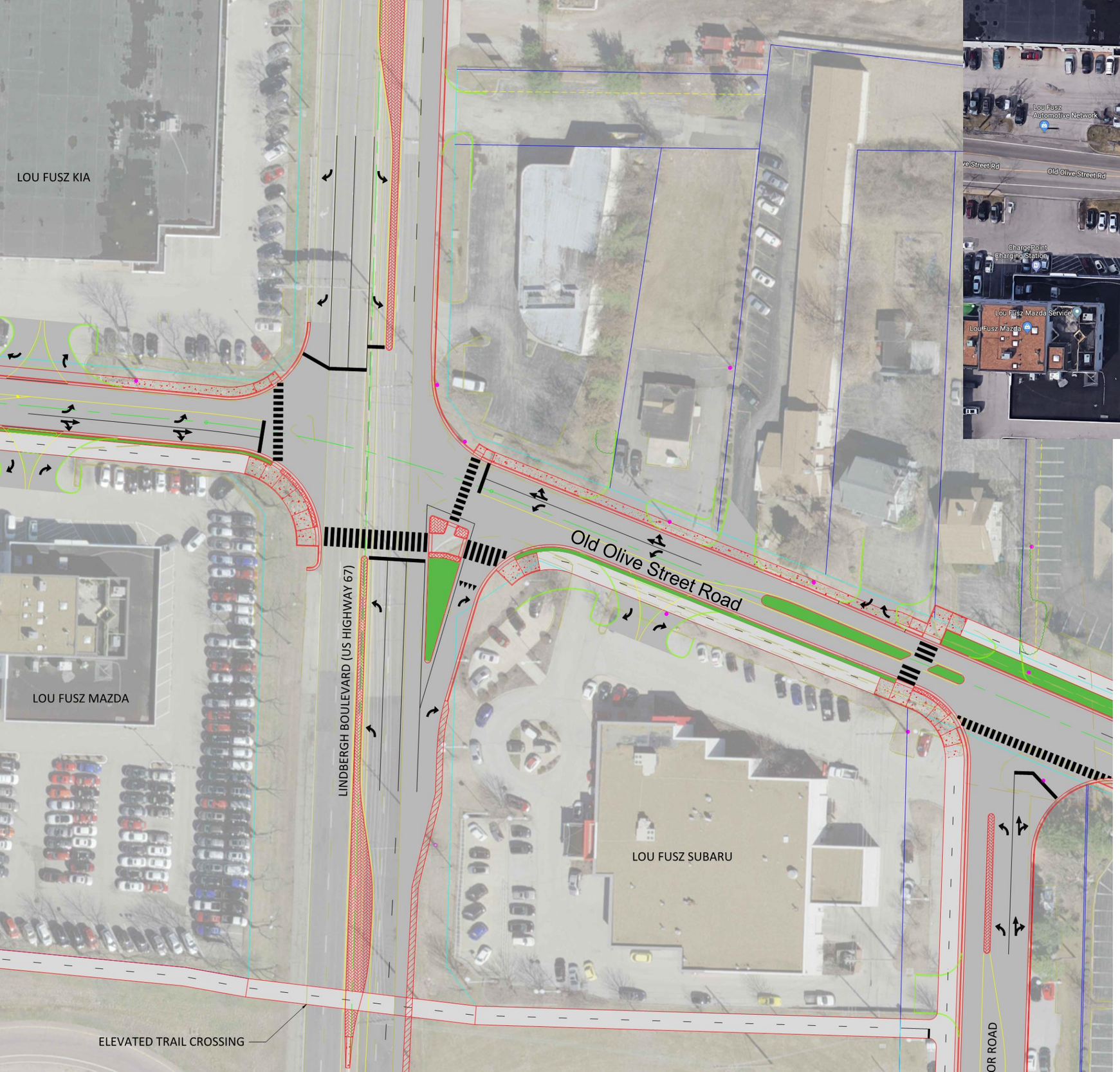


D 2 LANE + MEDIAN

The Convertible Section

For configurations C and D, a landscaped median has been provided to allow for turn lanes along the corridor and acknowledge the locations of many utilities on the south side of the right of way. The landscape median will provide a place for lighting to be accommodated in the middle of the street. Features of C and D include:

- Section plans for the future by allowing for two travel lanes and a turn lane
- West of Lindbergh, a center median coordinates with current turn lane needs
- Center median provides a corridor for lights and landscaping



Existing Conditions

Old Olive/Lindbergh Intersection

The existing intersection of Olive and Lindbergh is designed to facilitate on and off ramp movements and has no east – west connection. There are jersey barriers in the middle of Lindbergh to prohibit east-west movements, vehicular and pedestrian, across the intersection. The intersection is not currently signalized.

The proposed intersection design provides full access with left-turn lanes and bike/ped crossing at a new signalized intersection. This design has been reviewed by MoDOT in a preliminary review. Final engineering and review/ approval will need to be obtained by MoDOT. This project is a priority project for the City of Creve Coeur.

The features include:

- North-south and east-west through traffic and left turns
- Bike/ped crossing on the south side of Old Olive with a generous refuge area
- Most improvements within the existing MoDOT/Lindbergh rights of way with minor right of way acquisition required.

Old Olive/Lindbergh Intersection Transformation

This future view of the intersection looking west along Old Olive illustrates a full access intersection where vehicular, bike, and pedestrian connections are all designed to safely co-exist. The 12' wide shared use path crosses the intersection on the south and has a generous pedestrian refuge area at the signalized intersection. Decorative pavement accents, native plantings, and graphic branding elements enhance the area while concentrating the aesthetic improvements in key locations. This intersection is contained within the MoDOT right of way. Aesthetic elements that are within the right of way will require MoDOT approval. The illustrated design integrates elements that have precedents in our area.

legend

- potential multiple use path route
- crosswalk
- public flow
- potential greenway route

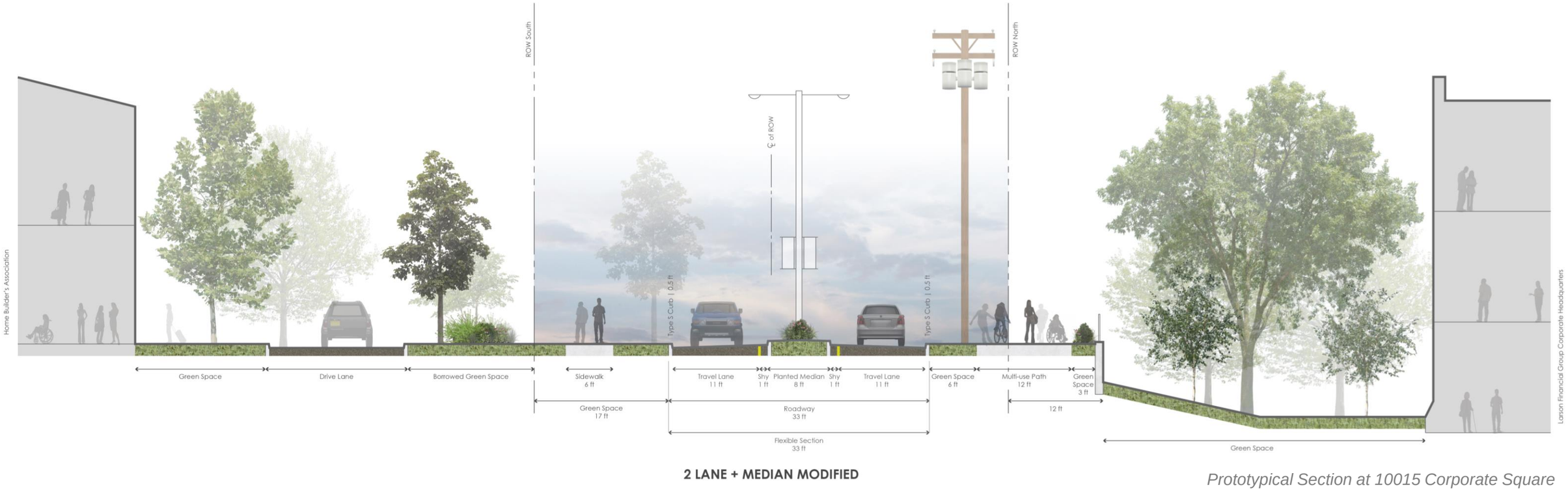
Bike and Pedestrian Connectivity

A shared use path is located on the south side of Old Olive west of Lindbergh in order to engage existing and future mixed use/commercial and avoid high voltage utility pole conflicts. East of Lindbergh, it transitions to the north side of Old Olive to connect directly to a planned greenway within the 39°N district. Ultimately, it will connect to the Centennial Greenway, one of Great Rivers Greenway's network of bike and pedestrian trails. Centennial Greenway is planned to connect Forest Park in the City of St. Louis to Creve Coeur Lake Park in St. Louis County.

The shared use path shifts to the north side of the corridor after the Old Olive/Lindbergh intersection and at the Old Olive/Connector Road intersection. This is a safe place to transition. Acquisition of private property from two property owners is necessary to position the shared use path on the north side. If the share use path cannot be located on the north side, the space is available within the right of way on the south side of corridor.

Bike and Pedestrian Connectivity East of Lindbergh

East of Lindbergh, the character of Old Olive is very different in both land use and private property frontage character. This side of Old Olive around Corporate Square Drive primarily has a business park character with established office buildings and surface parking lots. The design of a median for this area is purposeful. The additional space in the middle of the road anticipates the need for future turn lanes at Corporate Square Drive and or the connector road intersections. Until that time, a landscape median filled with native plants provides an attractive setting.



Prototypical Section at 10015 Corporate Square

Corridor Design East of Lindbergh

This section is located near the intersection of Old Olive and Corporate Square Drive. The office building at 10015 Corporate Square is illustrated on the right or north side of the section. It is proposed that the shared use path be located on the north side of Old Olive in this area to create a direct connection to the proposed north-south greenway.

Due to the location and large number of utility poles, it will be necessary to obtain 12' of private property along the frontage of the 10015 Corporate Square building and from Missouri American Water to the east. This proposal is thought to be reasonable for two reasons: 1) only two property owners are involved and 2) the frontage of both properties is underutilized space. A retaining wall will be required at the office building. Fence relocation will be required at Missouri American Water between the water tanks and the shared use path.

PUBLIC REALM DESIGN

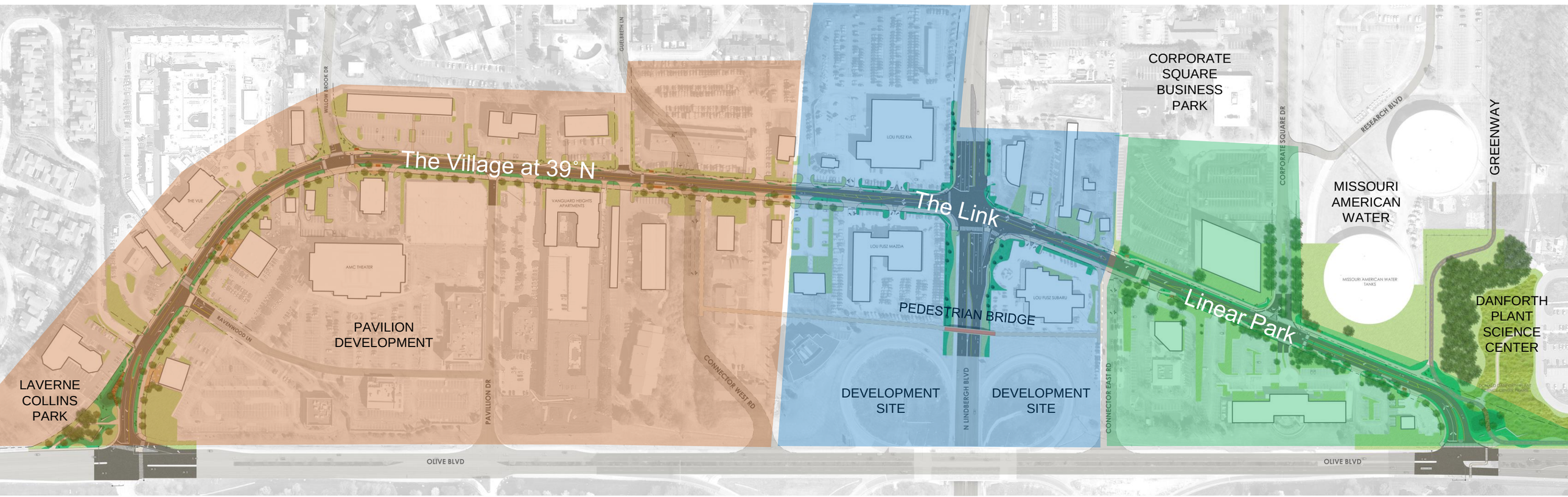
PUBLIC REALM

Old Olive Corridor Improvement Zones

The corridor and its land uses naturally separate the improvement treatment into three zones:

- The Village at 39˚N
- The Link
- Linear Park

The existing characteristics of each of these zones along with the potential for improvement create unique opportunities that are designed into the corridor plan. The Village is characterized by existing and emerging mixed use and the presence of typical suburban development. The Link is dominated by the auto-oriented influence of Lindbergh Boulevard as a MoDOT state route. In addition, three of the four corners are occupied by Lou Fusz auto dealerships. The Linear Park zone has been given this name because of the visual presence of existing trees and wide, well-maintained lawn areas. In the future, the park-like quality can be enhanced by the public realm improvements.



The Village at 39°N

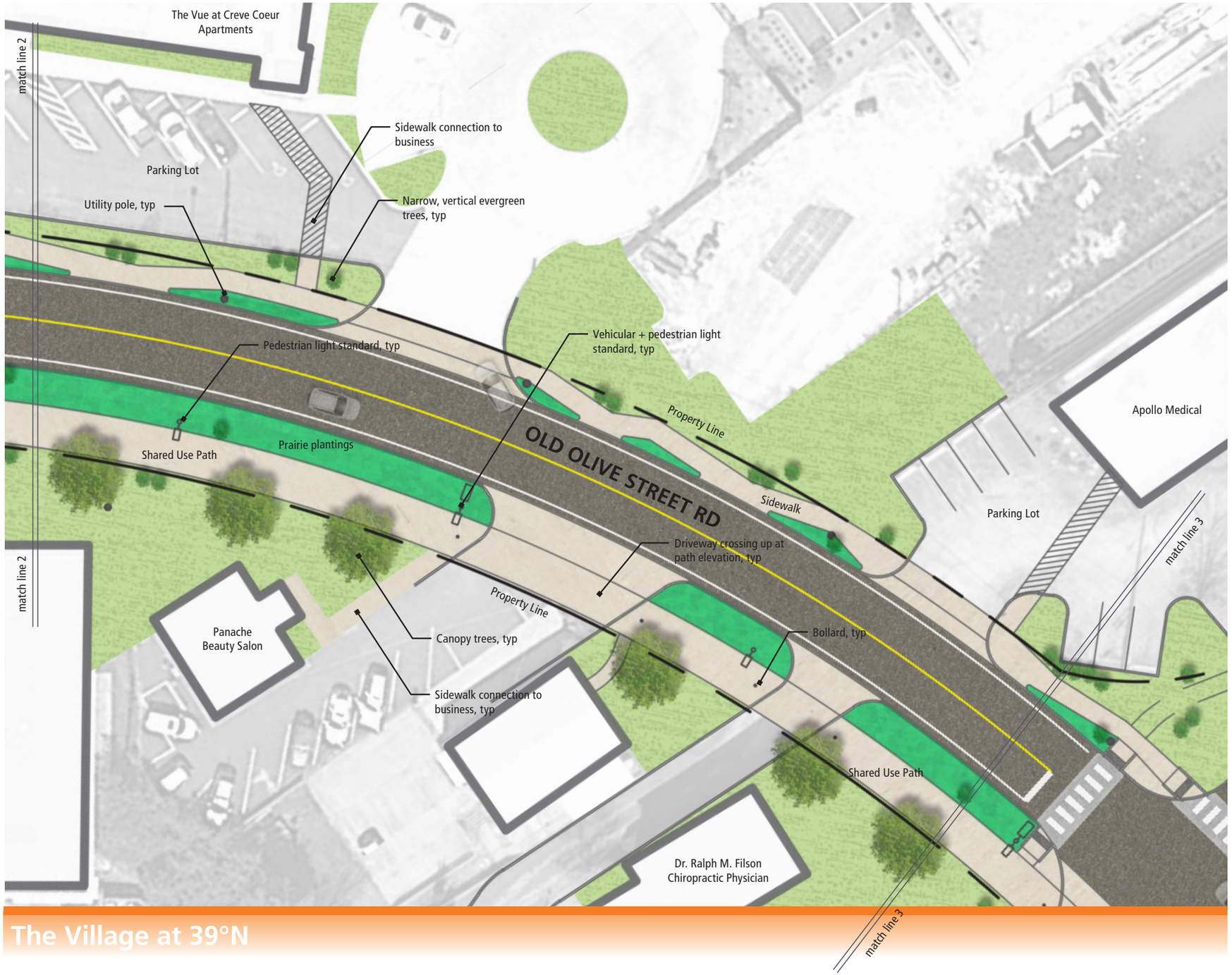
N

0' 7.5' 15' 30' 60'

The Village at 39°N

N

0' 7.5' 15' 30' 60'


The Vue at Creve Coeur Apartments
match line 2
Sidewalk connection to business
Parking Lot
Utility pole, typ
Narrow, vertical evergreen trees, typ
Pedestrian light standard, typ
Vehicular + pedestrian light standard, typ
Property Line
Apollo Medical
Shared Use Path
Prairie plantings
OLD OLIVE STREET RD
Sidewalk
Parking Lot
match line 3
Driveway crossing up at path elevation, typ
Property Line
Panache Beauty Salon
Canopy trees, typ
Bollard, typ
Sidewalk connection to business, typ
Shared Use Path
Dr. Ralph M. Filson Chiropractic Physician
match line 3
The Village at 39°N

N

0' 7.5' 15' 30' 60'

The Village at 39°N

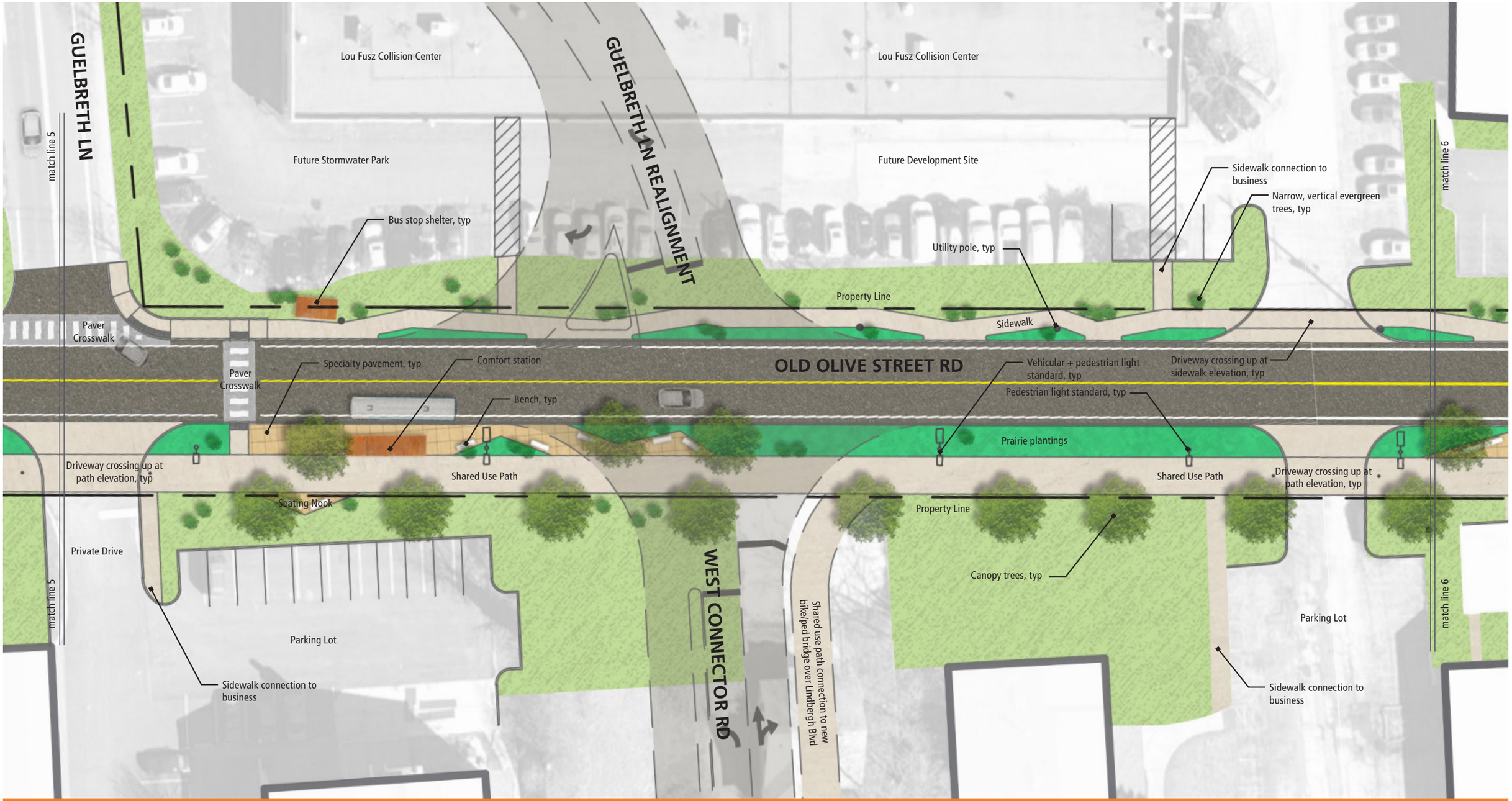
N

0' 7.5' 15' 30' 60'

The Village at 39°N

N

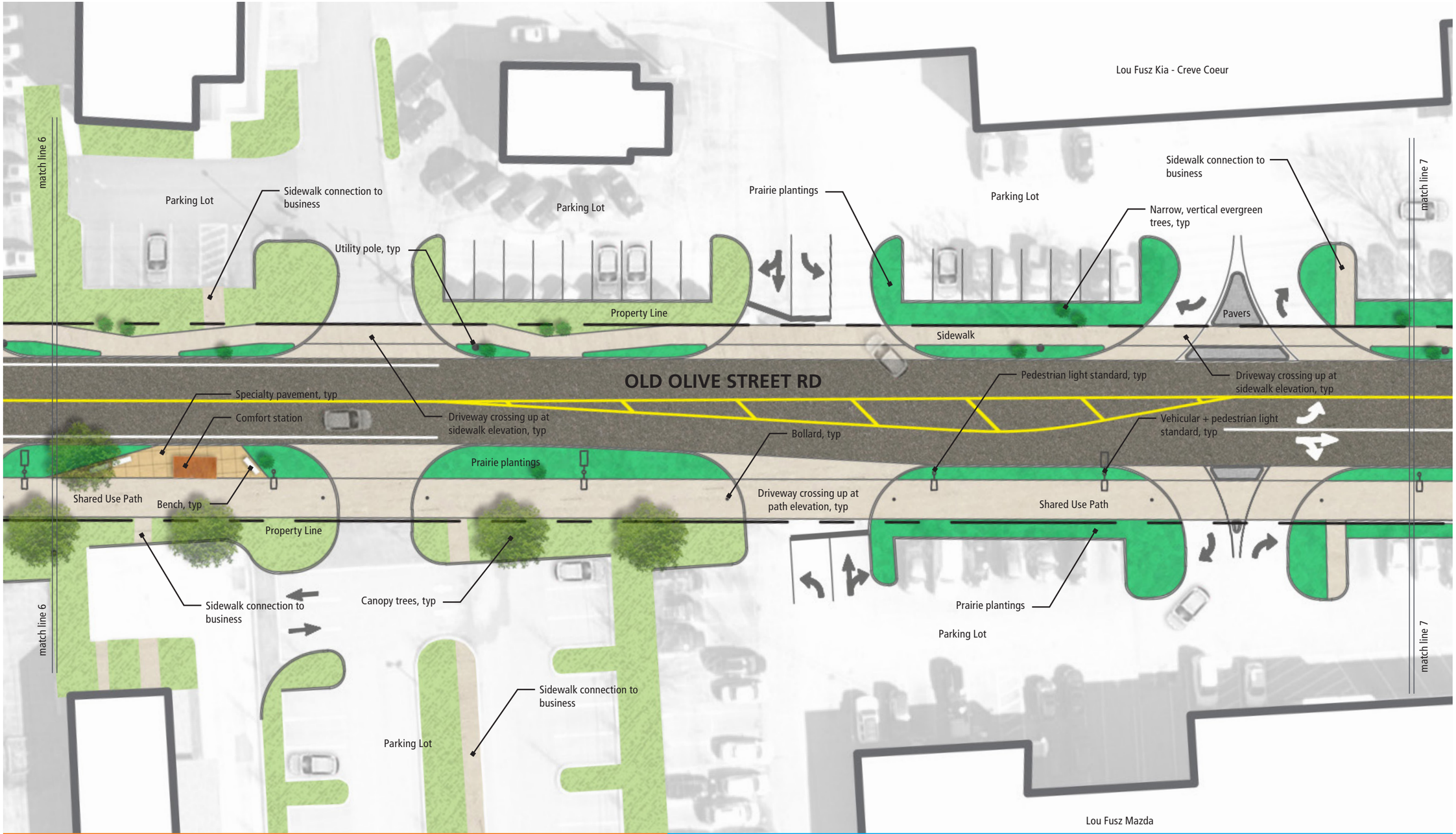
0' 7.5' 15' 30' 60'



The Village at 39°N

N

0' 7.5' 15' 30' 60'

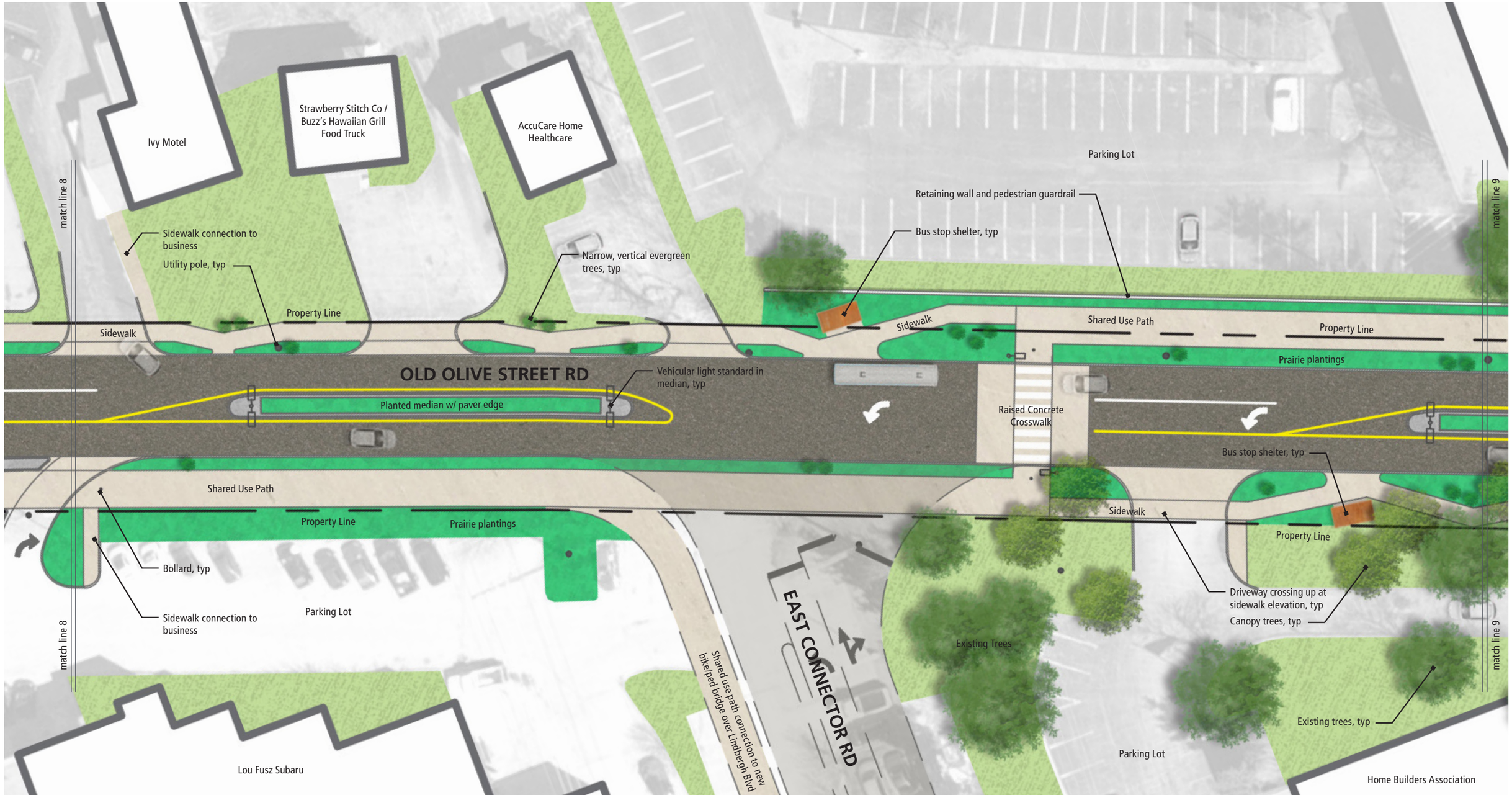

Lou Fusz Kia - Creve Coeur
match line 6
match line 7
Parking Lot
Sidewalk connection to business
Parking Lot
Prairie plantings
Parking Lot
Sidewalk connection to business
Narrow, vertical evergreen trees, typ
Utility pole, typ
Property Line
Sidewalk
Pavers
OLD OLIVE STREET RD
Pedestrian light standard, typ
Driveway crossing up at sidewalk elevation, typ
Specialty pavement, typ
Comfort station
Driveway crossing up at sidewalk elevation, typ
Vehicular + pedestrian light standard, typ
Bollard, typ
Prairie plantings
Shared Use Path
Bench, typ
Driveway crossing up at path elevation, typ
Shared Use Path
Property Line
Sidewalk connection to business
Canopy trees, typ
Prairie plantings
Parking Lot
Sidewalk connection to business
Parking Lot
Lou Fusz Mazda
The Village at 39°N
The Link

N

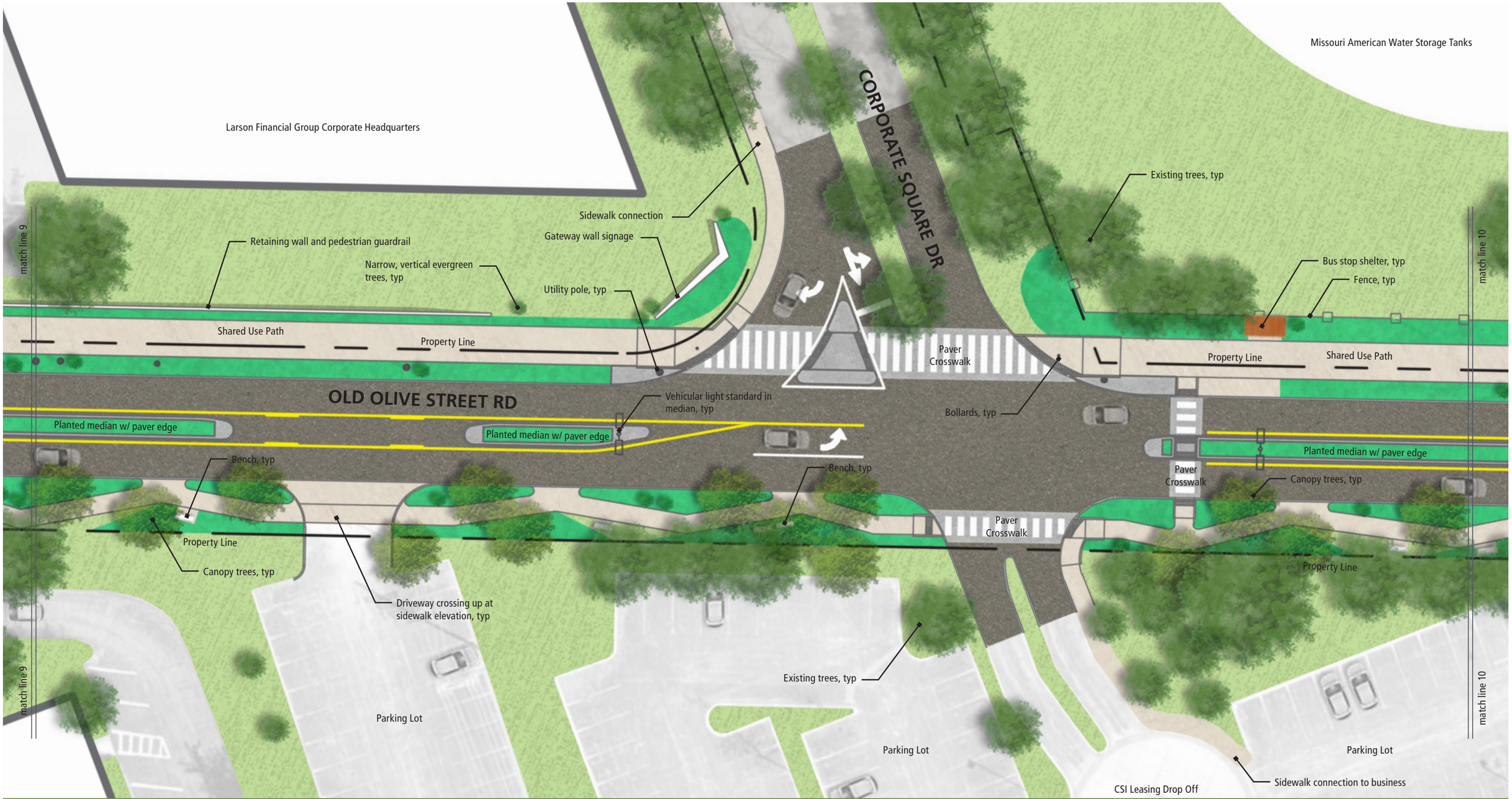
0' 7.5' 15' 30' 60'

Lou Fusz Kia - Creve Coeur
Parking Lot
match line 7
Narrow, vertical evergreen trees, typ
Utility pole, typ
Prairie plantings
Property Line
Sidewalk
Signal pole, typ
OLD OLIVE STREET RD
Retaining wall and pedestrian guardrail
Shared Use Path
Property Line
Gateway sign wall, typ
Pavers, typ
N LINDBERGH BLVD
Vertical evergreen trees, typ
Prairie plantings, typ
Edwards Carpet & Floor Center
Parking Lot
Pavers in median
Prairie plantings
Sidewalk connection to business
Property Line
Utility pole, typ
Driveway crossing up at sidewalk elevation, typ
Wayfinding signage incorporated into signal pole
OLD OLIVE STREET RD
Sidewalk
match line 8
Parking Lot
Lou Fusz Mazda
Vertical evergreen trees, typ
Prairie plantings
Property Line
Painted crosswalk, typ
Prairie plantings
Shared Use Path
Property Line
Prairie plantings
Parking Lot
match line 8
N
0' 7.5' 15' 30' 60'

The Link


Ivy Motel
Strawberry Stitch Co / Buzz's Hawaiian Grill Food Truck
AccuCare Home Healthcare
Parking Lot
match line 8
match line 9
Retaining wall and pedestrian guardrail
Bus stop shelter, typ
Sidewalk connection to business
Utility pole, typ
Narrow, vertical evergreen trees, typ
Property Line
Sidewalk
Shared Use Path
Property Line
Prairie plantings
OLD OLIVE STREET RD
Vehicular light standard in median, typ
Planted median w/ paver edge
Raised Concrete Crosswalk
Bus stop shelter, typ
Shared Use Path
Property Line
Prairie plantings
Sidewalk
Property Line
Bollard, typ
Sidewalk connection to business
Parking Lot
Driveway crossing up at sidewalk elevation, typ
Canopy trees, typ
Existing Trees
Shared use path connection to new bike/ped bridge over Lindbergh Blvd
EAST CONNECTOR RD
Existing trees, typ
Parking Lot
Lou Fusz Subaru
Home Builders Association
The Link
Linear Park

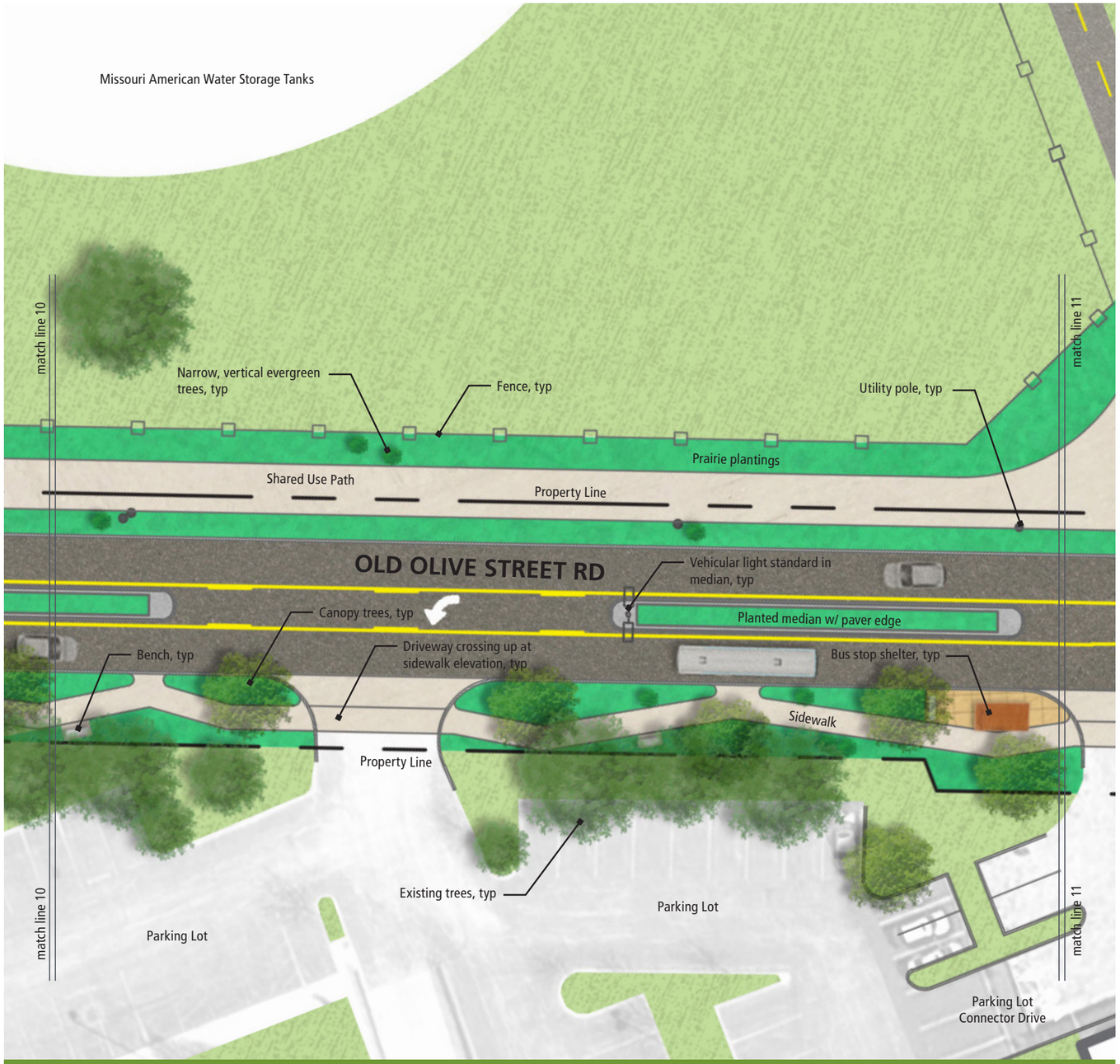
N
0' 7.5' 15' 30' 60'



Linear Park

N

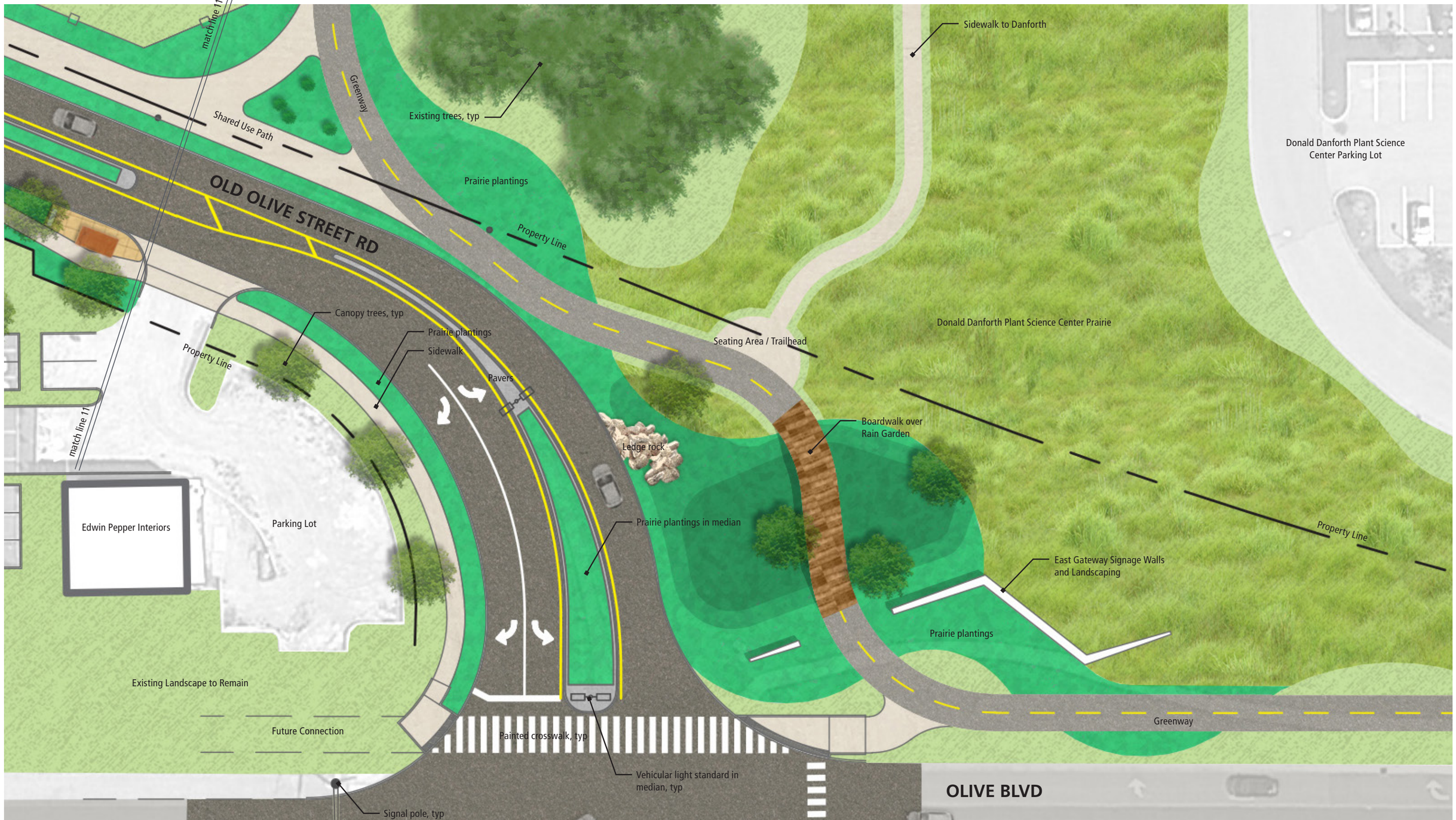
0' 7.5' 15' 30' 60'



Linear Park

N

0′ 7.5′ 15′ 30′ 60′

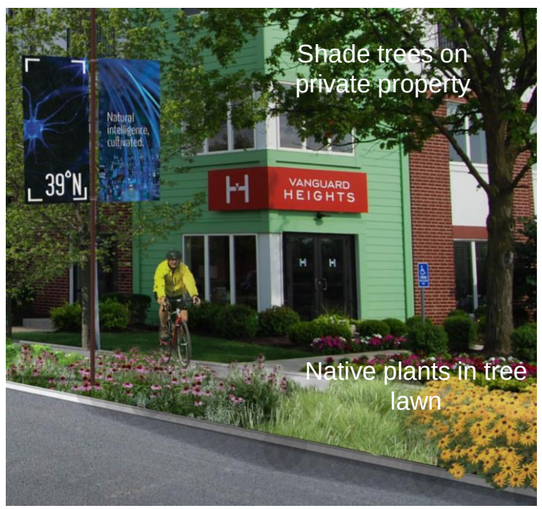


Linear Park

N

0' 7.5' 15' 30' 60'

North Side



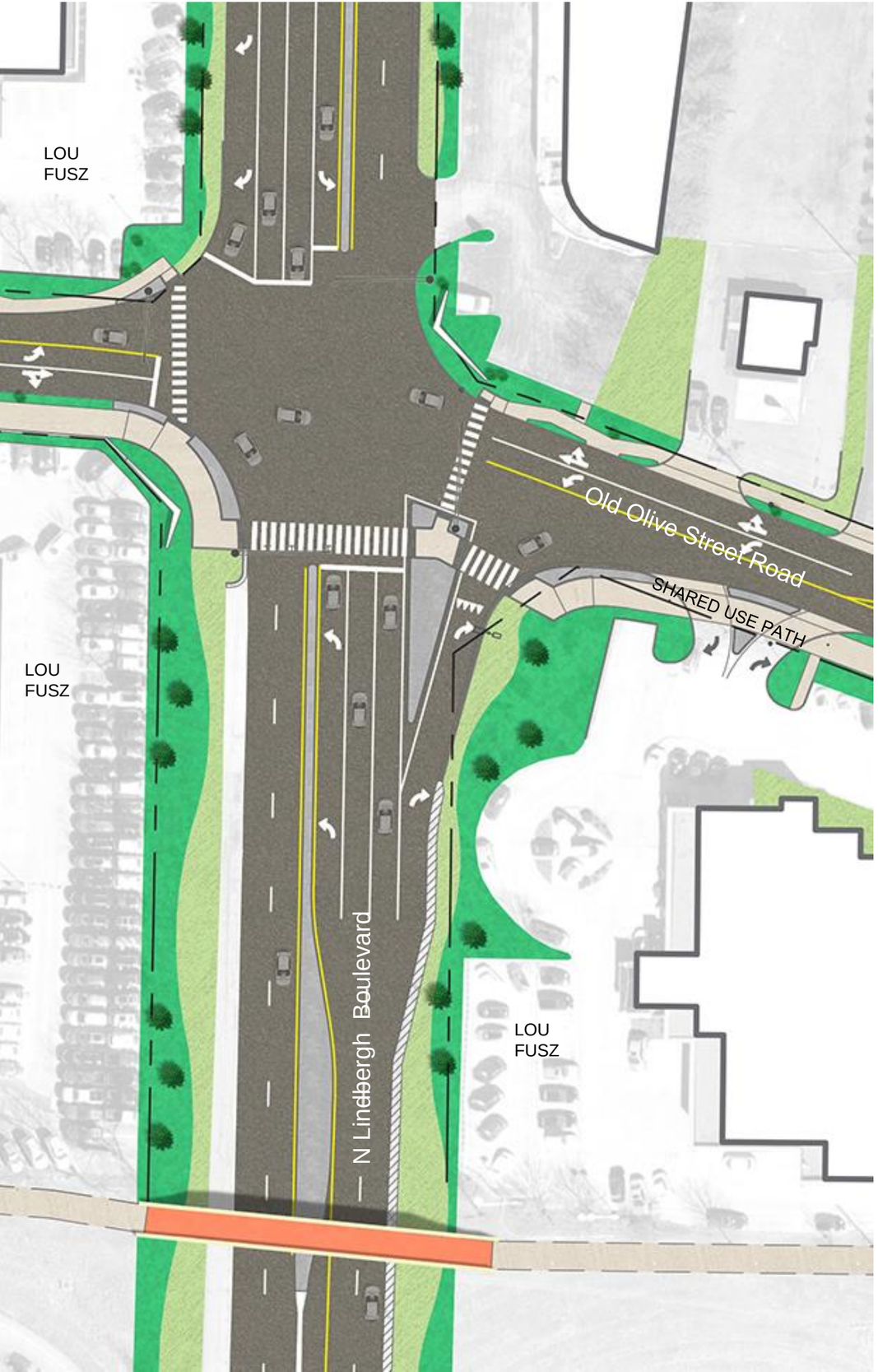
North Side

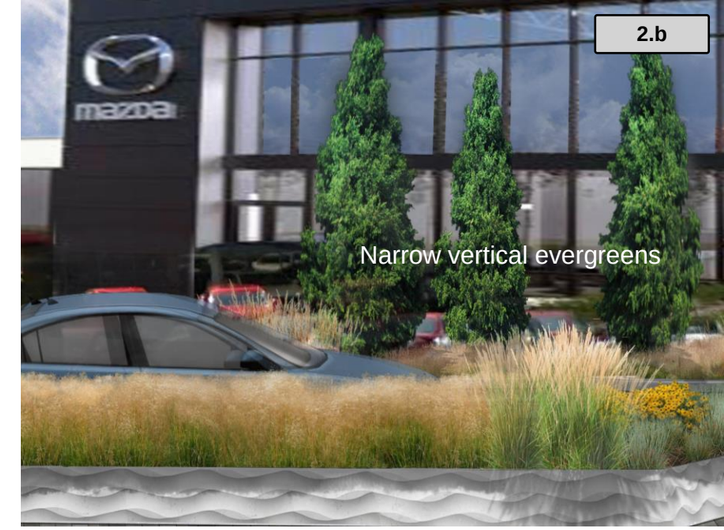
South Side

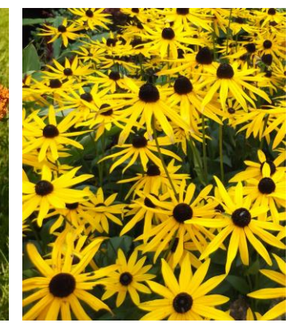
Landscape Character
Village at 39°N

The Village at 39˚N is currently a mixed use zone. Reconfiguration of the Old Olive corridor, to include a shared use path and sidewalks, is designed to work with new development opportunities to enhance the mixed use district. It is envisioned that this district will include retail, restaurants, services, and residential to create a village destination.

The landscape character of this district includes native and prairie plants arranged to highlight building entrances and areas of pedestrian focus. On the south side, new trees for shade and scale are located in both the tree lawn and beyond the right of way in the building setbacks to make the right of way appear bigger. On the north side ornamental trees and small evergreen trees punctuate the landscape and coexist with the utility poles.

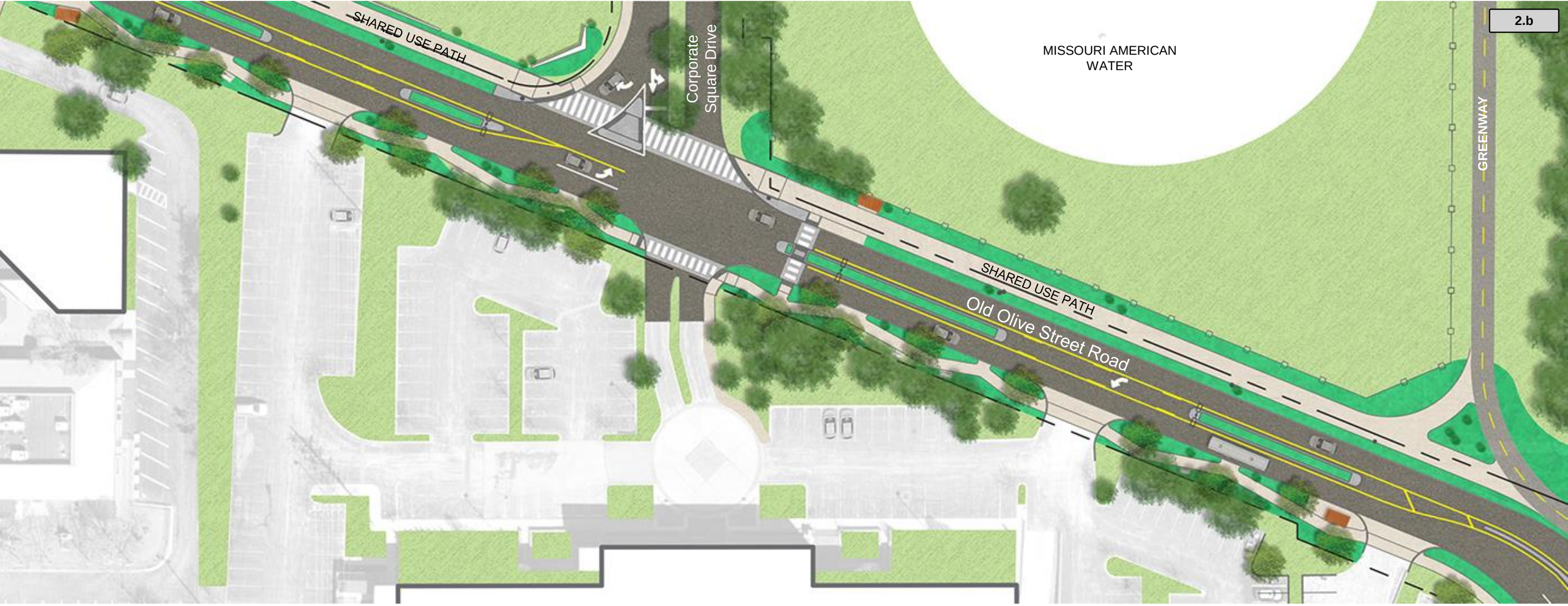






Landscape Character
Link

The Link area includes the Lou Fusz auto dealerships at three corners of the Old Olive/Lindbergh intersection. The Lou Fusz corners in addition to a variety of land uses on the northeast corner of the intersection, make up the Link that connects the Village at 39˚N and the 39˚N Corporate Square Business Park. The right of way on Lindbergh is owned by MoDOT and is generous in size. The proposed landscape is illustrated in large drifts of a low native understory of grasses and forbs with punctuating narrow evergreens. The low plants and narrow trees will maintain views to the auto dealerships while creating a highway-scaled landscape effect.



Landscape Character
Linear Park

Existing office uses dominate the frontage of Old Olive east of Lindbergh. The entrance to the Corporate Square Business Park is located on the north side. There are existing mature trees around existing office buildings and with the addition of the proposed landscape medians this area has a park-like quality. Here, the shared use path is on the north side of the road and the meandering sidewalk on the south side of the road with pockets of native plantings serves to enhance the Linear Park quality of the space.

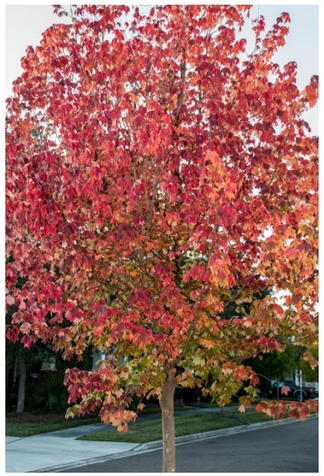
LANDSCAPE PALETTE

Landscape Design Inspiration

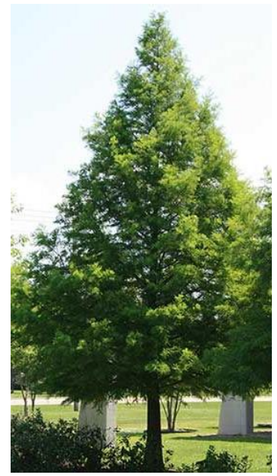
The inspiration for the landscape design originates at the Donald Danforth Plant Science Center. Six acres of Missouri Tallgrass Prairie have been restored at the site. The Danforth Center is located east of Old Olive and the project area. The Old Olive corridor can be a direct extension of the prairie and Missouri native landscapes. This will be a non-traditional streetscape planting with areas for six landscape ecotypes. They provide the context for the landscape design:

1) Tallgrass Prairie –a natural mix of flowering plants, grasses, and shrubby plants that grow together in a harmonious landscape
2) Meadow and Cedars – a short native grass environment where the occasional native evergreen punctuates the landscape
3) Agriculture – a monoculture of food crop plants representing an aspect of the AgTech District
4) Prairie Forbs – the flowering plants of the prairie that can be used individually in commercial landscapes to bring color and create emphasis
5) Native Groves and Understory – trees growing close together, creating a shady place for native understory plants
6) Prairie Grasses – like forbs they can be used individually in commercial landscapes for a soft effect.

London Planetree

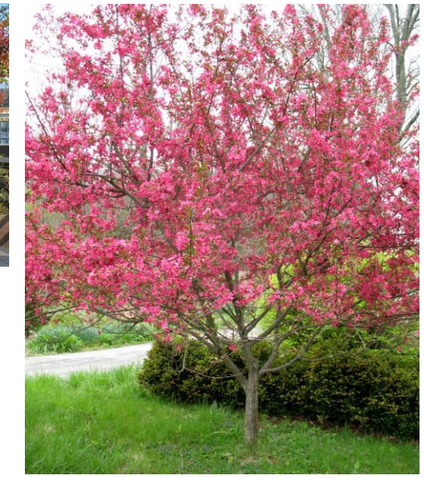


Trident Maple



Bald Cypress

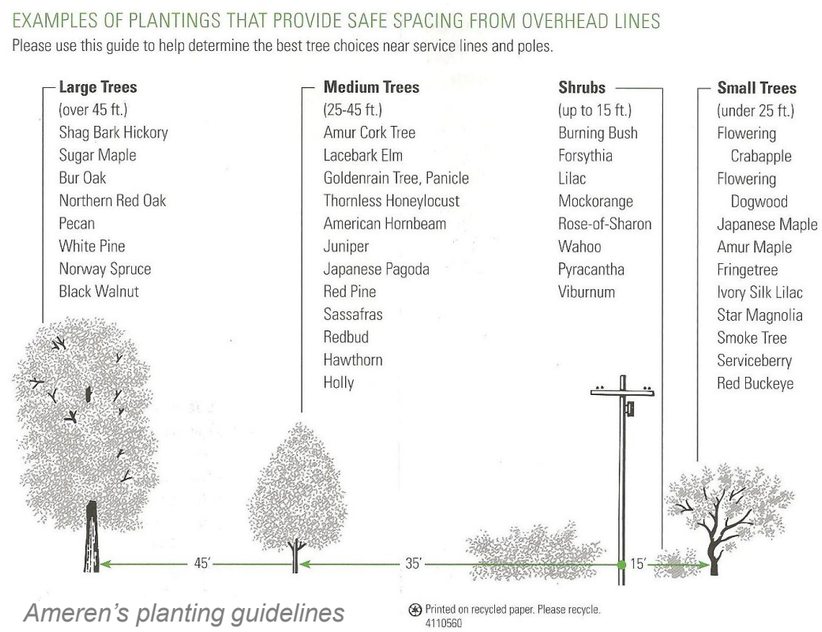
Autumn Brilliance Serviceberry



Prairiefire Crabapple

Canaeriti Juniper

Spartan Juniper



Ameren's planting guidelines

Landscape Palette - Trees

Trees are selected for their beauty, function, and size to be compatible with the overhead utility lines and the City of Creve Coeur tree lists. Refer to the Ameren guidelines to the left. Three categories of trees will be used:

Canopy Trees - there are specific areas along the corridor where large canopy trees can be planted. The limitations include underground and overhead utilities as well as planting bed size and soil mass. Canopy trees can be clustered in groves to provide shady respites for cyclists and pedestrians.

Evergreen Trees – narrow, vertical evergreens remind us of the native Missouri Eastern Red Cedar. They will be used to soften unsightly areas or act as a vertical accent in the landscape.

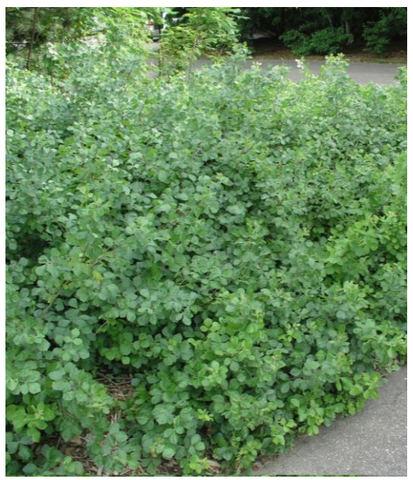
Ornamental Trees – these trees are the most flexible as they can be planted under the overheard electrical lines. They can be used in clusters for buffering, as single ascents against an evergreen mass, or as an understory tree.

Mount Airy Fothergilla

Arctic Fire Redtwig Dogwood

Yellowtwig Dogwood

Sea Green Juniper



Gro-Low Fragrant Sumac

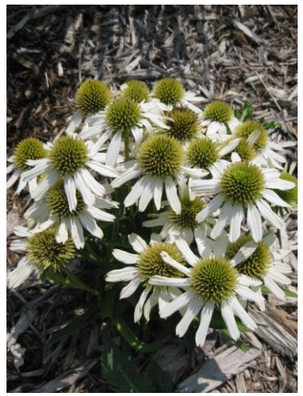
Prairie Dropseed

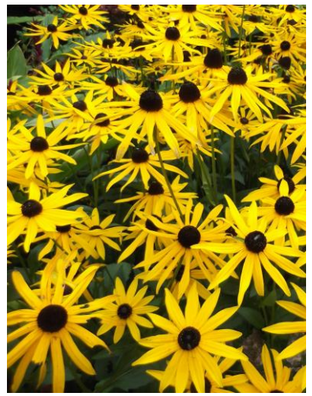
Northwind Switch Grass

Blue Heaven Little Blue Stem

Landscape Palette – Shrubs and Large Grasses

The landscape palette includes native deciduous shrubs and grasses with the addition of a non-native evergreen shrub for winter interest and structure. These plants were all selected for their change in color and texture during the seasons that include flowers, foliage color, and branching color. All of these plants have a presence during the winter months. It is desirable to allow the grasses to remain in a dry state during the winter for winter interest. This shrub and large grass category of plants will be used in landscape buffers and in large planting beds.


Snow Cone Coneflower

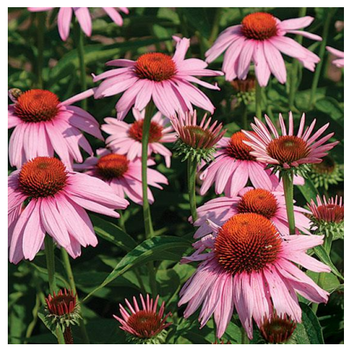

Black-eyed Susan

Autumn Fire Sedum

Butterfly Milkweed

Kobold Liatris

Rose Mallow


Purple Coneflower

Aromatic Aster

Cardinal Flower

Swamp Milkweed

Rose Turtlehead

Iris

Palm Sedge

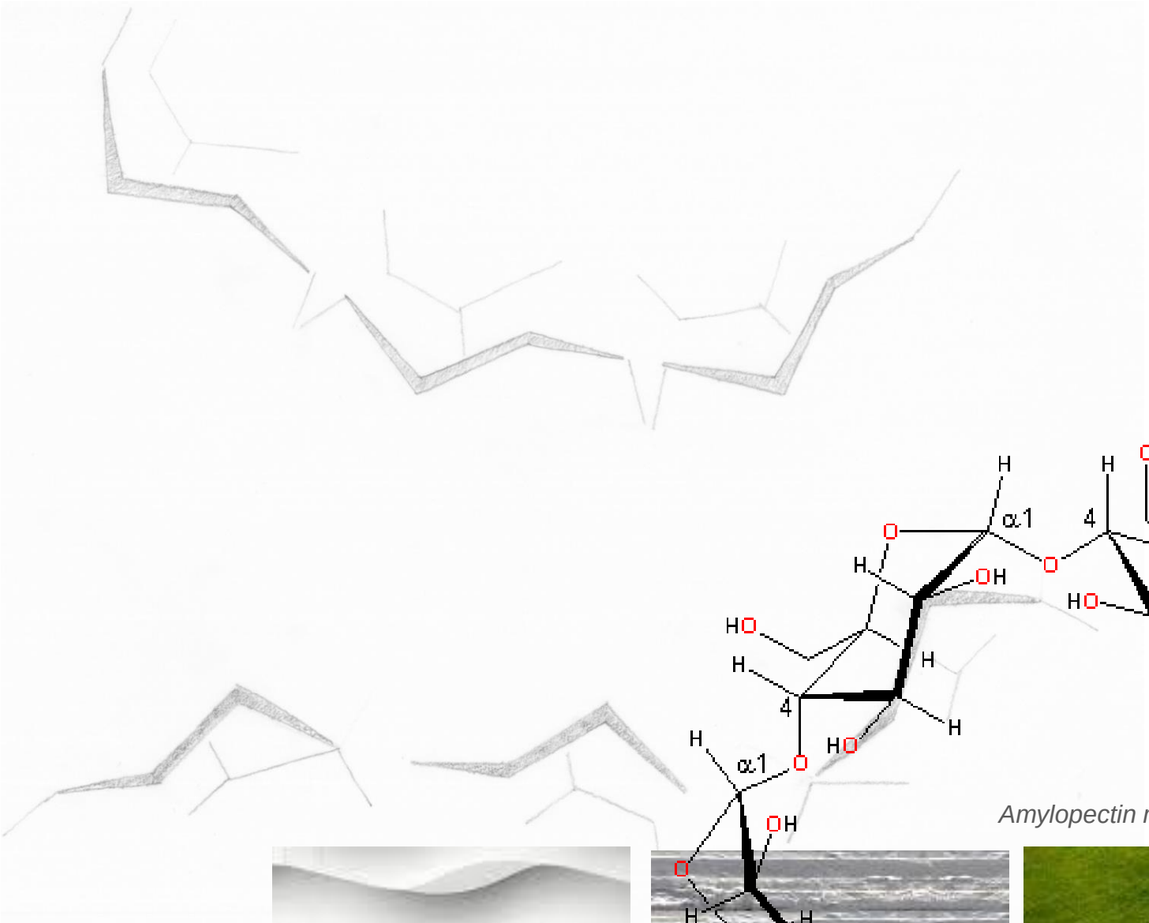
Oak Sedge

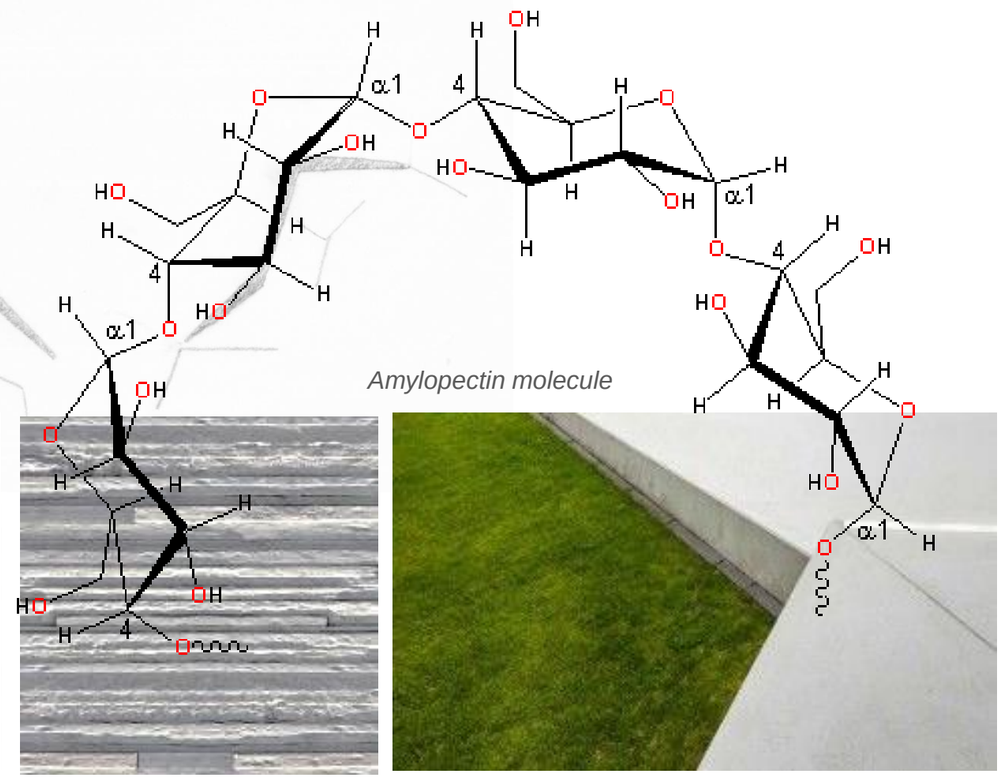
Decorative River Rock for BMPs

Landscape Palette – Forbs and Small Grasses

The landscape palette also includes native forbs and small grasses. Most of these plants, with a few exceptions, are natives found in the prairie. The plants have been selected for their showy characteristics and durability in commercial landscapes. To complement and simulate the Danforth Center prairie, the plants will be used in drifts and arrangements that mimic the prairie environment. Other large areas of the site can be seeded with prairie seed. But the smaller planting areas of the public realm will be designed.

MATERIALS PALETTE





Amylopectin molecule

Design - Materials
Inspired by Plants

The form of the sidewalk and wall elements are inspired by a glucose polymer found in plants – Amylopectin. This is one component of plant starch that provides energy when consumed by mammals.

The interesting shapes and branching of the of the chemical structure was our inspiration.

Long angled sidewalk sections allow the alignment to navigate between and around utility poles.

Precast concrete walls mimic this tapered form in plan and elevation.

Precast concrete examples

Design - East Gateway

This gateway is at the intersection of Olive Boulevard and the Donald Danforth Plant Science Center. Six acres of Missouri Tallgrass prairie were reconstructed on the Danforth Center site in 2013. Inspired by earth elements and the prairie, this gateway includes sculptural precast concrete retaining and free-standing walls that hold back the earth. The prairie will roll up to the top of the main wall and be visible from Olive Boulevard. Individual prairie plants are used along the front of the wall to highlight their beautiful features. The proposed greenway connection along Olive Boulevard weaves through the walls to connect to the greenway section going north and to the shared use path along Old Olive. What cannot be seen in this view is the Storm Water Park behind the wall. The greenway will cross over the bioretention and go through a native emergent plant environment.

Design - West Gateway

This gateway is at the intersection of Olive Boulevard, Old Olive, and LaVerne Collins Park. It is also across the road from the Pavilion Development and the Schnuck's grocery store - two key retail/commercial destinations for Creve Coeur. This gateway is integrated into the park and creates a renewed focus on this small, passive park. Freestanding and sculptural precast concrete walls weave between the existing trees. New sidewalks behind the walls accommodate the pedestrian cut-through traffic from the bus stop on Olive Boulevard to Old Olive going north. Now the walkways, landscape, and wayfinding elements are part of the pedestrian experience. What cannot be seen in this image is the potential to activate the park with active and passive park components such as seating, a play area, and other neighborhood amenities.

Edwin Pepper Interiors

10425 Old Olive

Kohn's Deli

10330 Old Olive

10448 Old Olive

Creve Coeur Pavilion

1015 Corporate Square

11921 Old Olive

10451 Old Olive

Design - Architectural Context

To understand the materials palette for the district, the architectural context was analyzed. These buildings represent the past aesthetic. They are from the 50s, 60s, and 70s with predominant brown and red brick, wood, bronze or black window frames, and beige IFIS/stucco. A couple exceptions include mid-century and curtain wall expressions.

Donald Danforth Plant Science Center

The Vanguard Heights Apartments

Bus stop

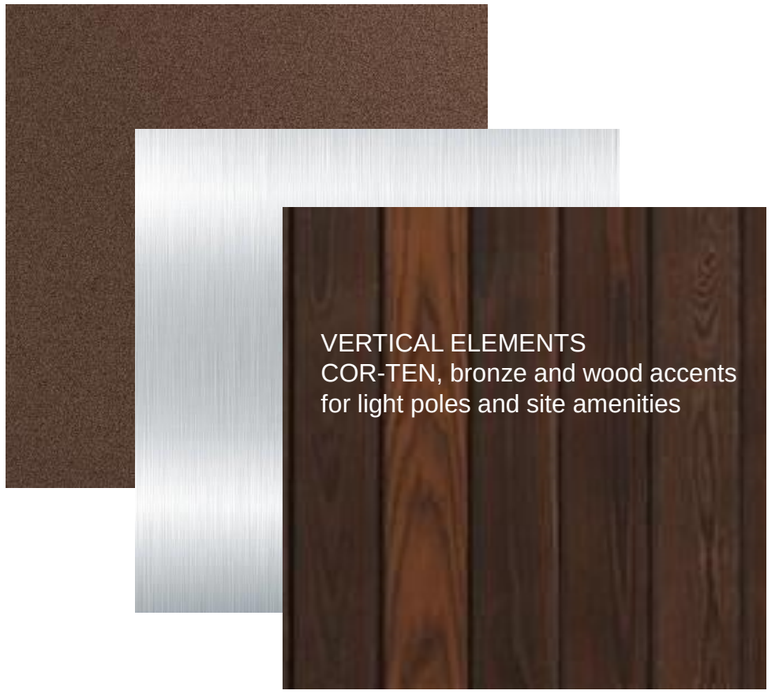
The Vue Apartments

BRDG Park

Lou Fusz Mazda (future)

Design - Architectural Context

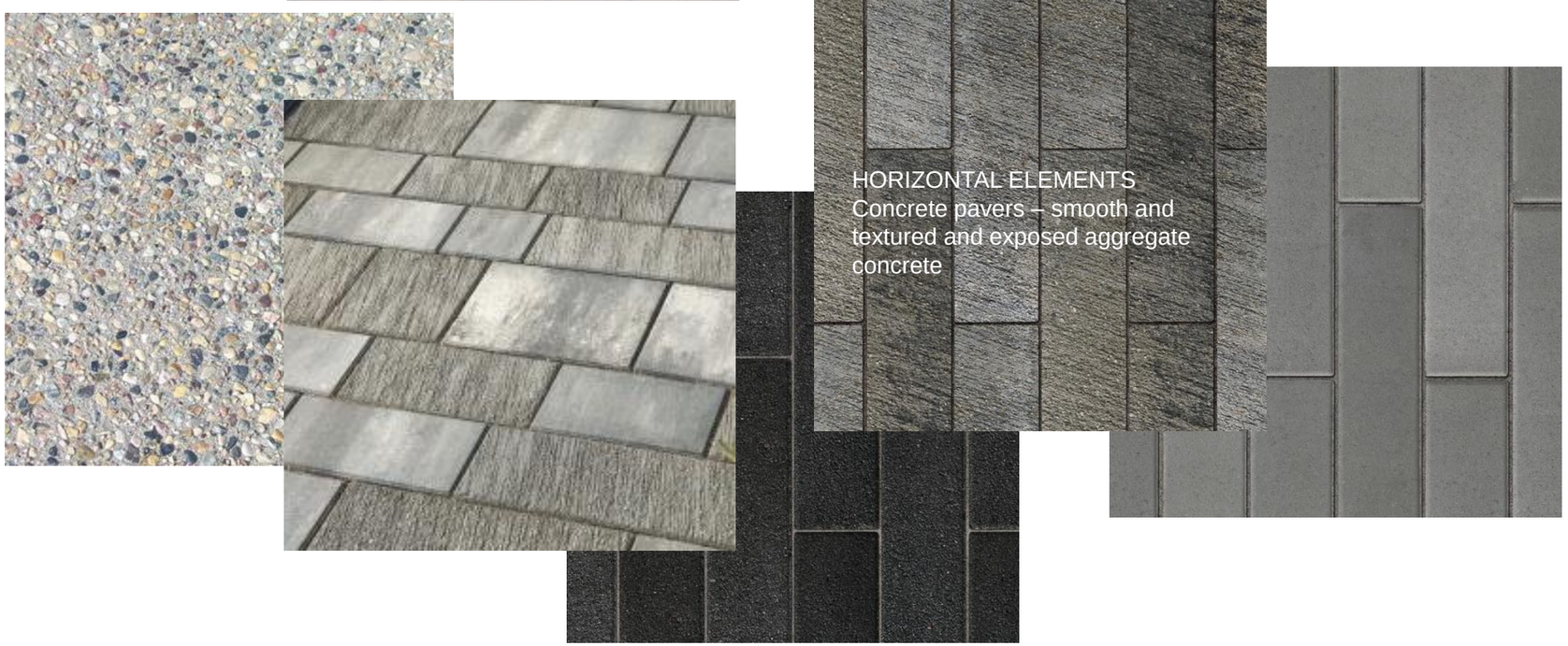
To understand the materials palette for the district, the architectural context was analyzed. These buildings represent the current aesthetic. Materials include terracotta/warm-tone brick, cream IFIS/stucco, white metals, wood accents, dark grey, COR-TEN steel, and bronze tones.



VERTICAL ELEMENTS
COR-TEN, bronze and wood accents for light poles and site amenities

WALL ELEMENTS
Precast concrete with cast logo and texture

BRANDING
Colorful metal components

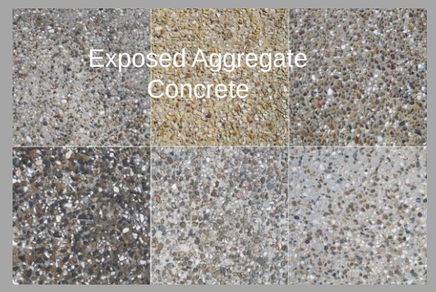


HORIZONTAL ELEMENTS
Concrete pavers – smooth and textured and exposed aggregate concrete

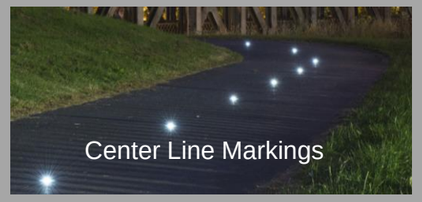
Design – Hardscape Materials

The hardscape palette has been developed to pair earthy materials such as concrete, brown metals, and wood accents with sophisticated greys and white metals. The physical design of the district creates a contrast – High Tech and AgTech.

Sidewalk

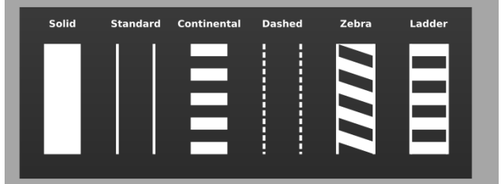


Shared-use Path

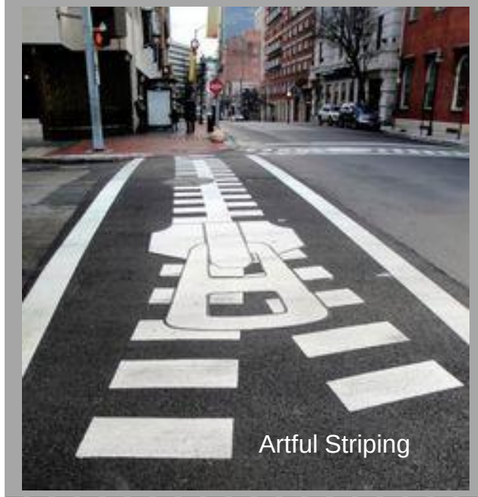


Buffer

Crosswalks



Standard Striping



Indicates initial city preferences

Design – Hardscape Materials

The City of Creve Coeur made an initial selection of materials for the public realm. These materials and their costs are reflected in the cost estimate.

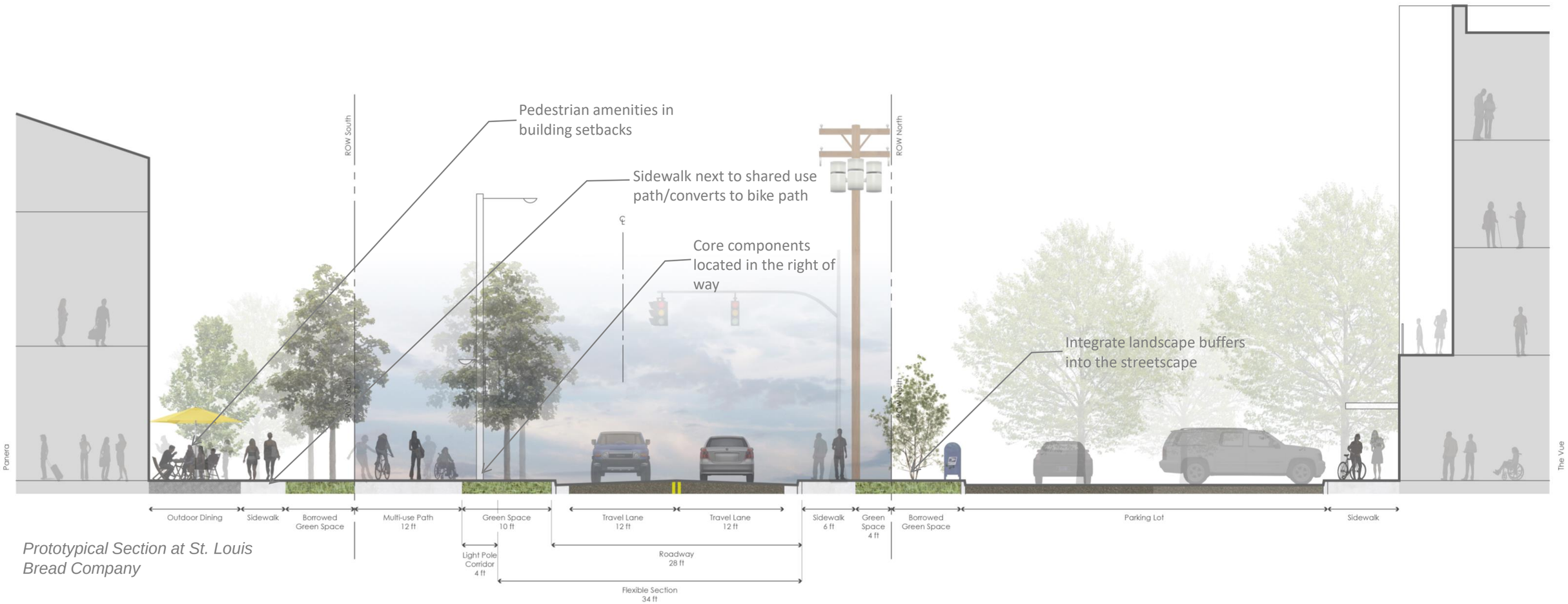
BIKE/PED AMENITIES

Design – Old Olive West of Lindbergh

A rendering looking north east along the new Old Olive corridor and the shared use path illustrates how the new improvements activate the street frontage. The existing St. Louis Bread Company has the potential to engage the street and provide outdoor dining and other amenities. Private property in the building set back, approximately 20' wide, can be leveraged for public/private use and become a physical and visual extension of the public realm. The shared use path is a 12' wide concrete path for bikes and pedestrians. Between the curb and the path, native plantings are proposed.

Design – Old Olive West of Lindbergh

A rendering looking east along the new Old Olive corridor illustrates the sidewalk concept. Today, there are short segments of sidewalk due to conflicts with the utility poles and other barriers. In the future, a 4'-5' wide sidewalk is designed to work around the utility poles. A softened angular design creates a flow in and around the existing pole locations. This design creates planting pockets between the curb and sidewalk and adjacent to private landscape buffers. The planting pockets are filled with native perennials, grasses and shrubs.



Prototypical Section at St. Louis Bread Company

2 LANE + GREEN SPACE

Design - Section East of Lindbergh

This typical section illustrates how the 2-lane road, shared use path on the south and sidewalk on the north fit within the existing 60' right of way. But it also illustrates how the building and parking lot setback areas can be leveraged for public/private use and amenities to expand the public realm both visually and physically. On the south side of the corridor a generous building set back allows for outdoor dining spaces, sidewalks and green space. Through redevelopment of sites, it is recommended that a sidewalk parallel to the shared use path be developed to eventually separate the pedestrians from cyclists. In the future, the shared use path could become bike only.

On the north side of the corridor, parking lot landscape buffers can incorporate the landscape palette of the project thereby appearing a seamless part of the public realm.

legend:

- A — bus stop, Panera, and entrance to Pavilion theater, shops, and restaurants
- B — intersection of Old Olive and Guelbreth with bus stop, and potential mixed-use development
- C — intersection of Old Olive and future connector road with bus stop, potential mixed use, and crossing of shared use path
- D — intersection of shared use path and the greenway with park spaces, greenway network map and other amenities

Design - Comfort Stations

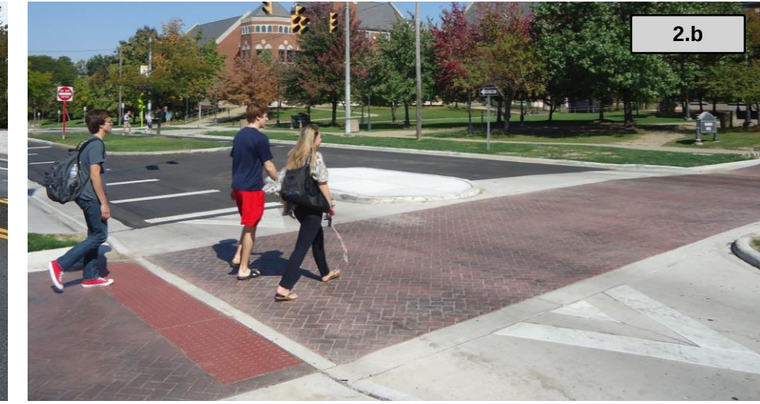
At key locations along the shared use path, comfort stations are integrated in the design. These are areas that that provide amenities for pedestrians, cyclists, and riders of transit. Amenities include bus stop/shade structures, seating, water bottle fillers, bike repair/air station, wayfinding kiosk, bike/scooter marshalling, among other features. These areas have decorative pavements and enhanced hardscapes and landscapes. Four locations have been identified.

legend:

- A Custom bus shelter and shade structure with seating, wayfinding kiosk
- B Decorative paver plaza area
- C Seat walls and benches
- D Landscape planters and shade trees
- E Potential mixed-use redevelopment
- F Potential shared use path on Guelbreth and connector road
- G Raised paver crosswalk

Design - Comfort Station Example Old Olive and Guelbreth

One of the comfort stations is proposed at the intersection of Old Olive and Guelbreth. There is potential for a shared use path on Guelbreth in the future to provide connections from The J and the residential neighborhoods north of Old Olive. This intersection also has the potential for redevelopment at the Lou Fusz property and alignment of Guelbreth with the future connector road to Olive Boulevard.

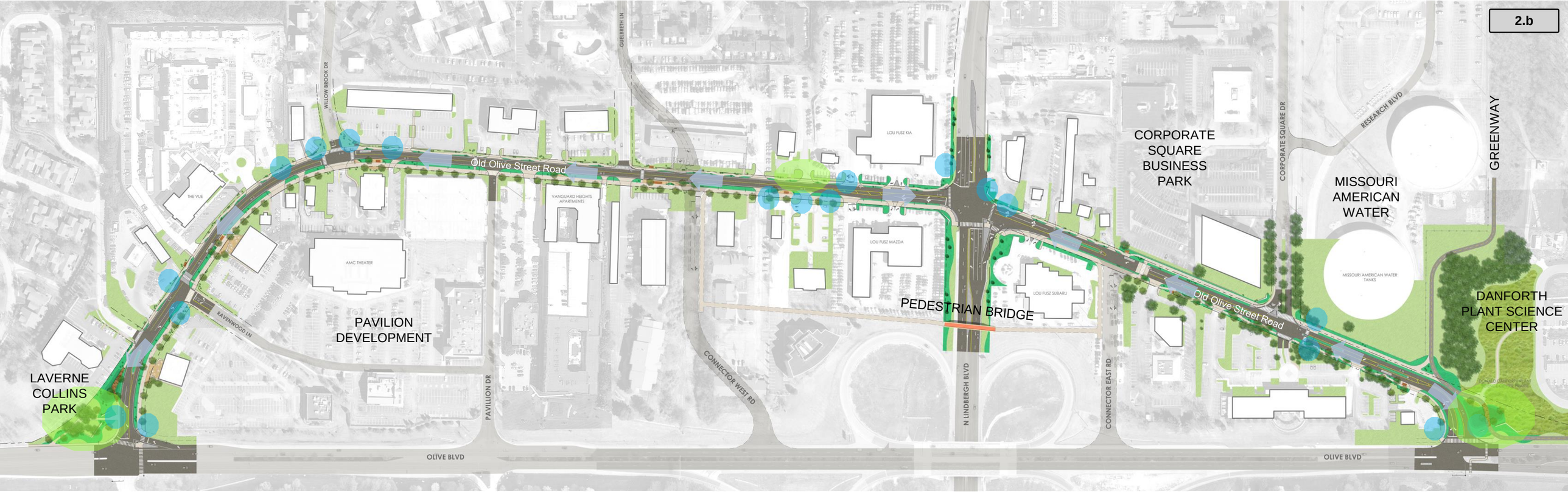


Examples of raised crosswalks

Design - Raised Crosswalks

Bike and pedestrian crossings occur at key locations along the corridor to move people across the street to access destinations, the shared use path, and other bike/ped network linkages. A few crosswalks that traverse Old Olive are proposed to be raised. This means that the crosswalk walking surface is at the same elevation of the curb and sidewalk. This signals to vehicular traffic that pedestrians have the priority when present and serves to slow vehicular traffic down. Crosswalks that would impede drainage if raised will be at the road elevation.

DRAINAGE AND STORMWATER



legend:

- locations of existing storm inlets
- drainage direction
- potential stormwater parks

Tanner Springs Park – Portland, OR

Bioretetntion – Danforth Center

Kemper Water Garden – Danforth Center

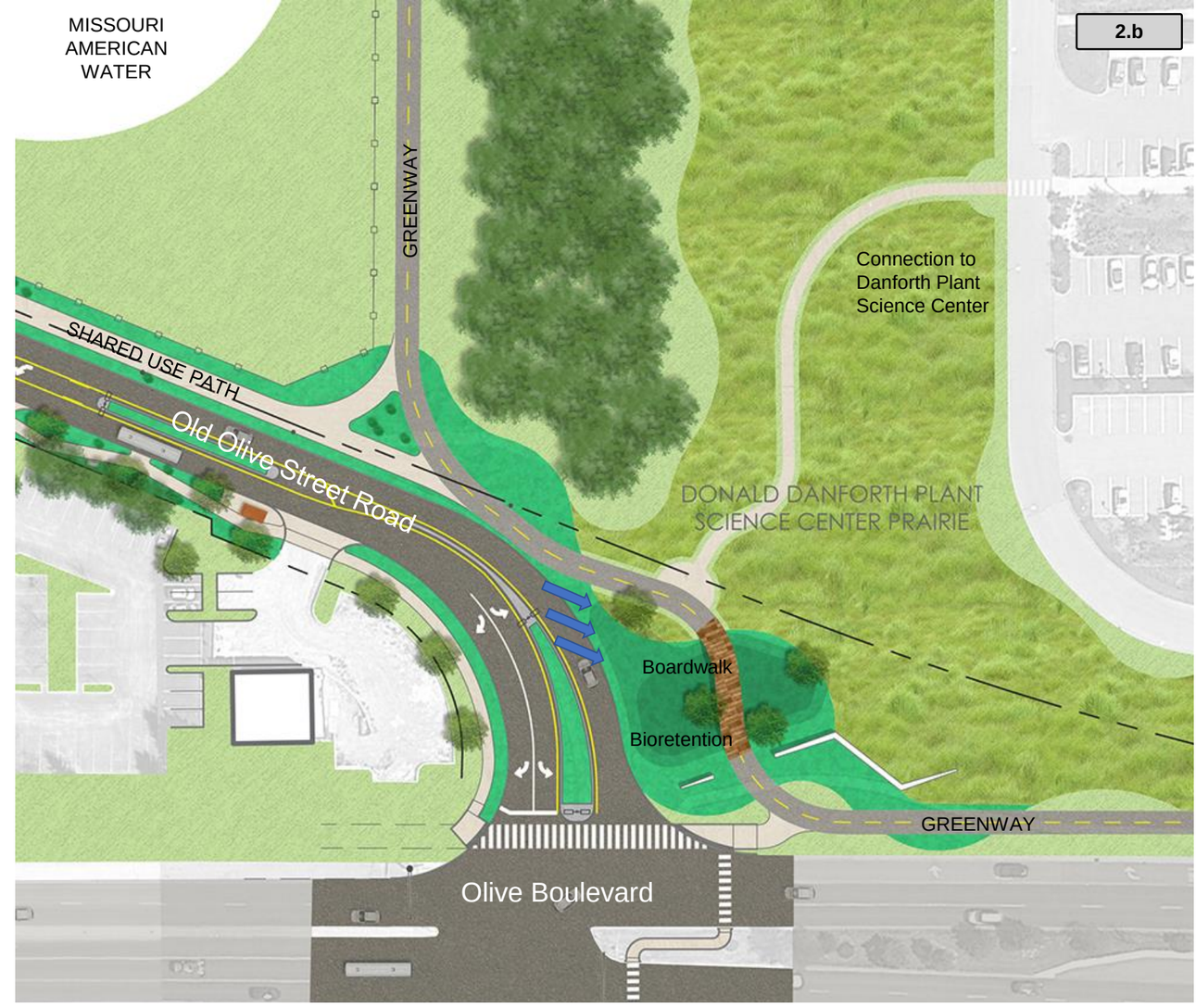
Drainage, Stormwater and Stormwater Parks

The proposed design of the Old Olive roadway as a two-lane road on the west and a two-lane road with medians on the east will require a complete reconstruction of curbs and storm water infrastructure. The existing drainage areas and locations of storm inlets have been evaluated. Due to the extensive number, large size, and shallow depth of water mains in the roadway, new shallow storm sewers will be needed. Also due to the utilities, the opportunity for deep-section stormwater BMPs are limited. Amended soils will be used to provide water infiltration instead of bioretention.

There is an opportunity to create three areas for stormwater management and provide district features. These are Storm Water Parks. The parks are located at gateways at each end of the corridor and in the middle of the district where there is a low point. Water can be directed off the road to stormwater BMPs such as bioretention. Examples of storm water environments are shown in the example images. Allowing people to engage in the environment creates an appreciation for these functional and beautiful spaces and provides opportunities to educate the public about their role. The Storm Water Parks proposed include:

1) West Park - enhancement of LaVerne Collins Park
2) East Park - at the greenway trailhead and adjacent to the Danforth Center Prairie
3) Center Park – potential for a storm water facility on private property to be designed with the redevelopment of the Lou Fusz property or others in the area

West Gateway and West Storm Water Park



East Gateway, East Storm Water Park, and Greenway Trailhead

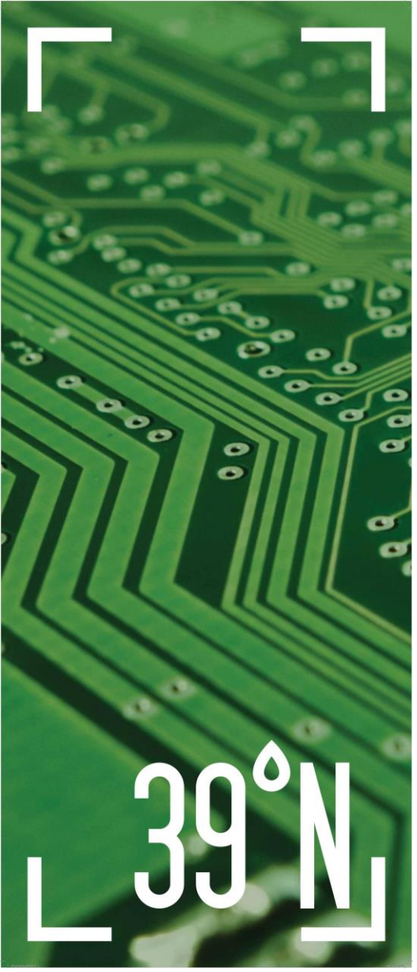
Stormwater Parks

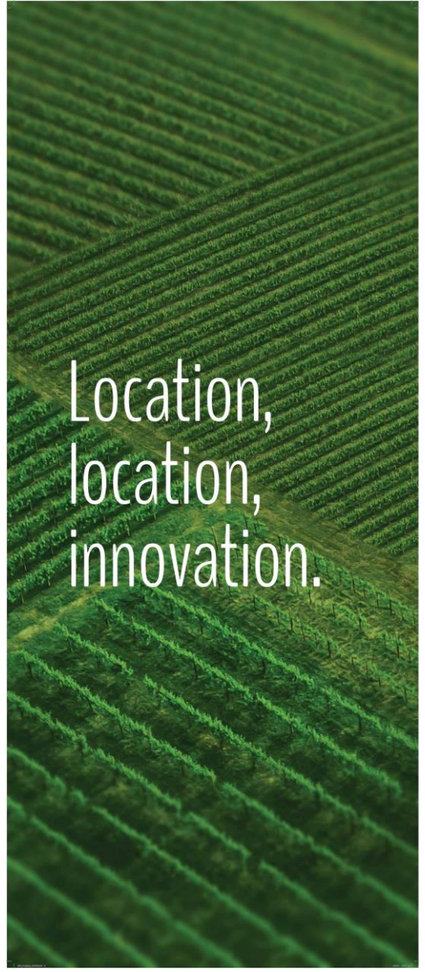
The enlargement plans illustrate the relationships of the Storm Water Parks to the gateway at each end of the Old Olive corridor. Both of these areas can be developed to meet functional needs for stormwater management and provide cyclist and pedestrian amenities. Stormwater from the ends of corridor can be directed into stormwater BMPs before it would normally enter stormwater inlets. Development of planted bioretention areas become opportunities to engage bike/ped circulation in the design.

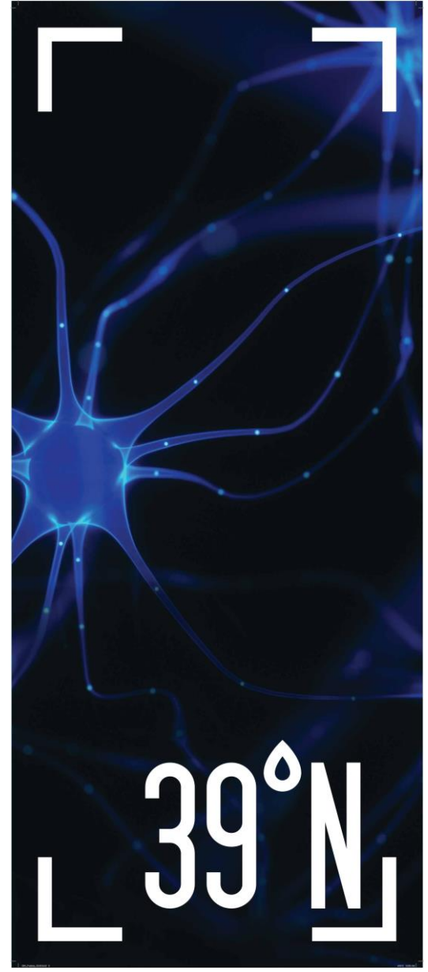
The features of the Storm Water Parks include:

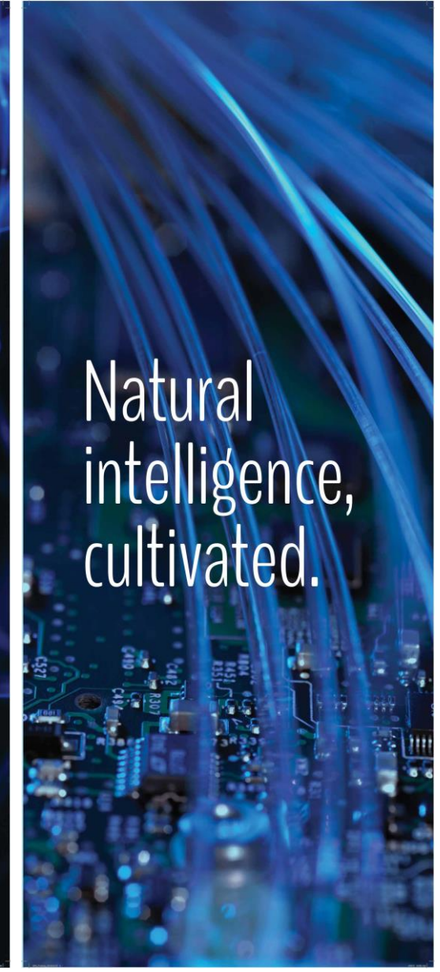
1) West Park – enhanced park circulation and connections to the Village at 39°N, seating, play area, boardwalk, native landscapes
2) East Park - greenway trailhead, integration of greenway, boardwalk, native landscapes, prairie, connections to Danforth Center

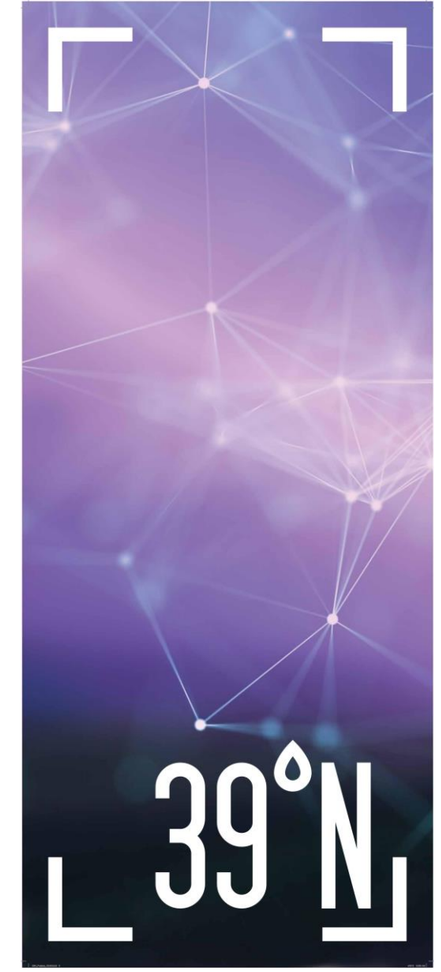
BRANDING AND WAYFINDING











Design Inspiration
District Branding

A logo and banners were designed for 39° N by Rogers Townsend. The designs shown here for banners pair high tech images with images of agriculture and our natural world. Currently, these banners are located on utility poles throughout the district and along Warson and Olive in Olivette.

The physical design inspiration for the district's public realm creates a similar contrast – High Tech and AgTech.

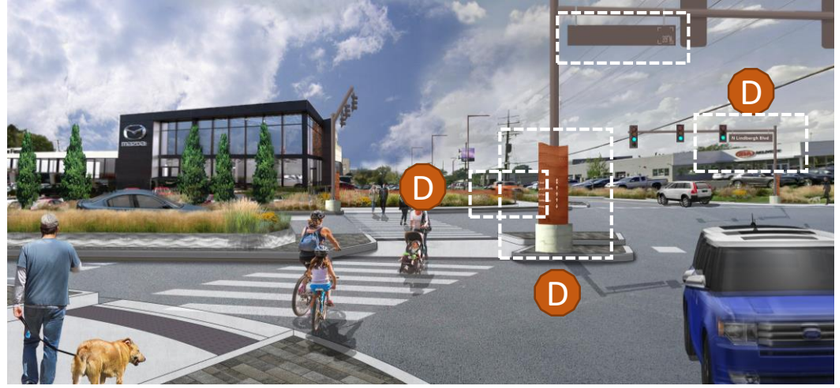
legend:

- A — gateway and branding – at the three main intersections of Old Olive and Olive West, Olive East and at Lindbergh. These include branding integrated into wall and decorative panel features
- B — destination monument sign – located at the entrances to Corporate Square business park, the Pavilion development, and the future redevelopment sites
- C — bike/ped network map and information kiosk – located at the comfort stations to communicate the 39North bike/ped facilities connect to local destinations and the regional bike/ped network
- D — intersection wayfinding – vehicular directional signage

*Banners (located on light poles)

Wayfinding and Branding

Wayfinding for the 39˚N District is integrated into the design elements of the site such as on the district gateway walls and environmental graphic elements. Wayfinding signage and branding is proposed to be at both vehicular and pedestrian scale to direct users in cars to destinations. It will also assist cyclists and pedestrians to navigation the trail network. District banners are positioned on new light poles through out the district to reinforce the boundaries of the district.



West Gateway

Old Olive/Lindbergh Intersection Gateway

East Gateway

A gateway and branding

D intersection wayfinding

banners on light poles

Wayfinding and Branding

The renderings illustrate how some of the wayfinding and branding applications are integrated into the site elements. Other key locations for wayfinding and branding include the Old Olive Corporate Square intersection, intersections at future connector roads, and with redevelopment projects. Refer to previous map. The examples shown in the renderings include:

1) West Gateway - integrated 39°N logos on sculptural precast walls, logo banners on light poles
2) Old Olive/Lindbergh Intersection Gateway – pedestrian scale wayfinding signage, integrated 39°N logos on intersection street signs, custom railing at Lou Fusz, logo banners
3) East Gateway - integrated 39°N logos on sculptural precast walls, logo banners on light poles

LIGHTING

legend:

- roadway light – 30’ tall pole with one LED fixtures facing roadway east of Lindbergh. Two LED fixtures on pole in median.
- pedestrian Light – 14’ tall pole with one LED fixture facing the shared use path

Lighting Strategy

The lighting strategy for the corridor responds to the practical limitations of extensive utilities, both overheard and underground. In response, the location of the lighting standards is different for the east and west sides of the Lindbergh intersection. On both sides of Lindbergh, large water main infrastructure determines where light poles can be located. Potholing has been done to determine the depths of the water mains which is about 48” below pavement grade.

West of Lindbergh, overhead electrical lines located on the north side of the road determined that the road will need to be lighted from the south side only. Tall roadway lights alternate with shorter pedestrian lights to light the road, shared use path, and the sidewalk. East of Lindbergh, overhead electrical lines continue on the north side of the road. On this section, the roadway design includes landscape medians. Lighting standards in the medians with two LED fixtures are proposed.

McGraw-Edison Galleon $

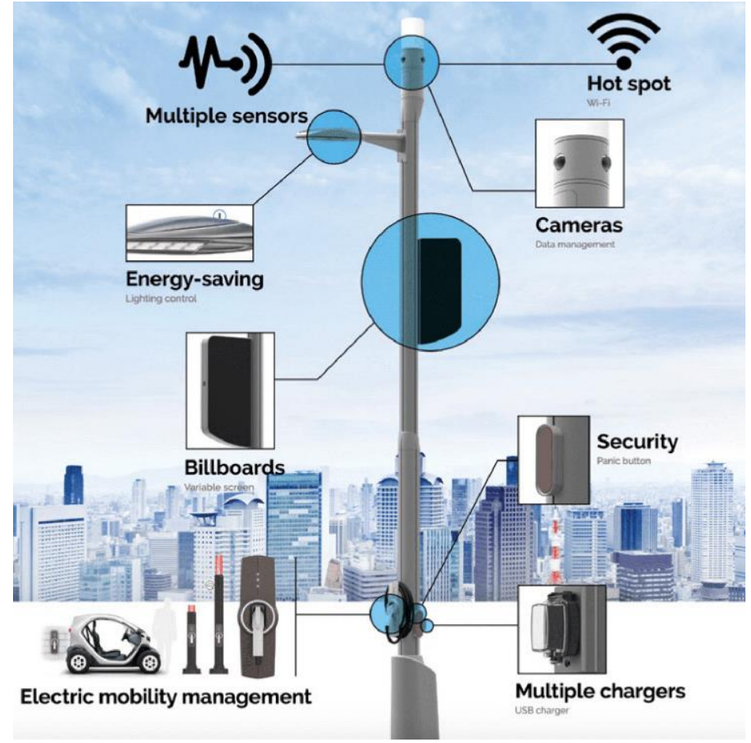
Philips Gardco Gullwing $

Philips City Soul $$

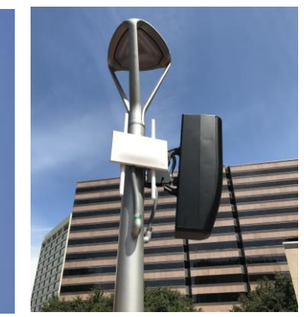
Design - Lighting Options

A new light pole standard will be determined for the corridor. A variety of pole and fixture types were explored that include a range of costs. From the left to the right, the costs increase. The desired aesthetic is clean lines and contemporary. The light poles should blend into the environment and not become another visual dominant element like the utility poles.

Lumca Lumfix Rail Pole and Smart Pole $$$



Lumca offers a smart pole system and integrated WIFI and other components with a clean look

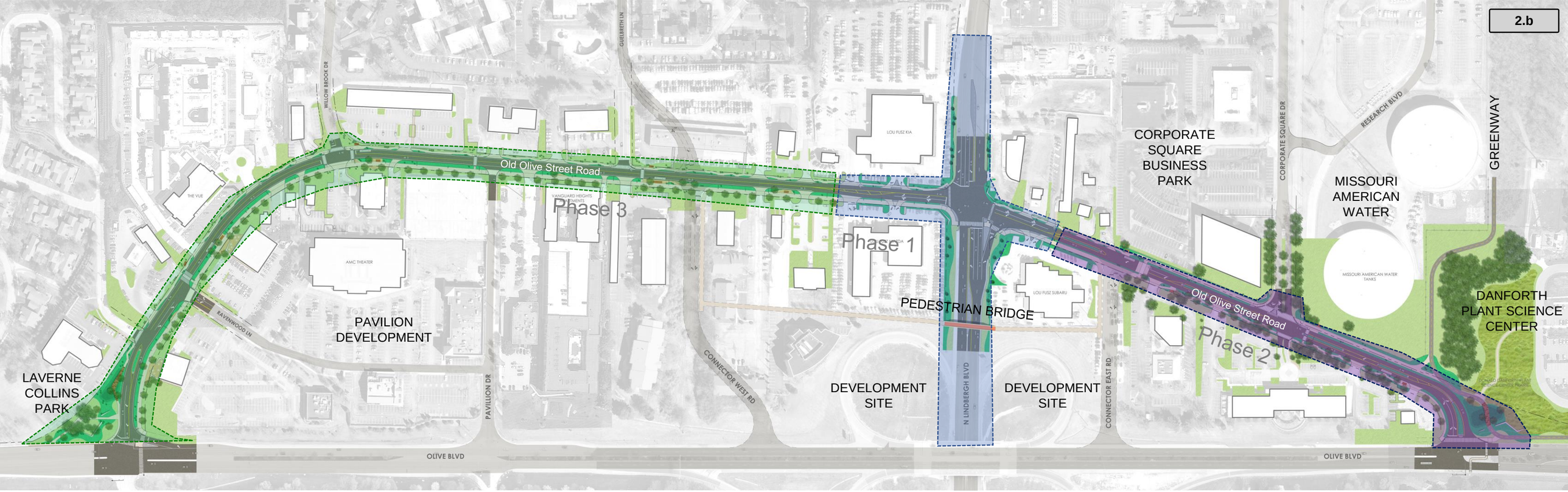


The Smart Pole avoids unsightly retrofit for WIFI and other equipment

Design – Lighting
Preferred Option

It is desirable to integrate current and future technology, such as WIFI cameras, etc., in the infrastructure of the district. The Smart pole and rail pole type systems are an attractive option. They provides flexibility to add infrastructure and features as well as signage as needs arise. This rail pole and the Galleon light fixture are in the cost estimate. WIFI infrastructure has not been factored in the cost.

PHASING AND COSTS



legend:

Phase 1: Old Olive/Lindbergh Intersection – includes reconstruction of the intersection to add a left turn lanes and new signalization. The scope of the Lindbergh improvements extends to the Olive bridge on the south and beyond the intersection on the north
$2.4 million

Phase 2: Old Olive east – includes shared use path on the north side of Old Olive, the greenway trailhead, medians, and storm water park at the intersection of Old Olive and Olive
$3.5 million

Phase 3: Old Olive west – includes the shared use path on the south side, 2 comfort stations, and a storm water park at the intersection of Old Olive and Olive
$5.9 million

TOTAL $11.9 million

Implementation Phasing and Cost

The corridor improvements are planned for Old Olive Street Road from Olive Boulevard on the west, through North Lindbergh Boulevard, and Old Olive Street Road on the east. Potential connector roads are illustrated by dashed lines on the plan. Three phases of implementation have been identified. The first priority is the Phase 1 - Old Olive/Lindbergh intersection project.

A cost opinion has been developed for the three phases of the project. These cost include comprehensive categories of improvement to include:

- Removals
- Earthwork
- Utilities
- Pavements
- Drainage
- Curbs and walls
- Shared use path and sidewalks
- Decorative pavements
- Pavement markings and traffic signage
- Landscaping and irrigation
- Lighting and signals
- Right of way costs
- Gateways and branding

Due to the need to do comprehensive street construction to reconfigure the right of way for the new road section and shared use path, phased construction on one side of the road is not possible. Sections of the new road section can be constructed but the scope should be determined by stormwater design parameters. Ultimately the phasing and construction of the project is flexible and should be opportunistic when redevelopment of properties along the corridor occurs.

COMMUNITY ENGAGEMENT

COMMUNITY ENGAGEMENT SUMMARY

Engagement Activities

Ensuring the public was engaged in the design process and given opportunities to provide input was a critical factor for the design of Old Olive Street Road. We worked to engage businesses, property owners, area residents, area institutions, and the cities of Creve Coeur and Olivette in our outreach efforts. We also worked to make sure our efforts were well publicized and the community has had the opportunity to weigh in on the proposed improvements. Our efforts included the following outreach:

Property Owner Outreach – March 2018
In March of 2018, area property owners were sent a letter introducing them to the 39°N district and inviting them to the April Venture Café to learn more about the greenway, Olive/Lindbergh interchange, and Old Olive projects being planned.

Stakeholder Kick-off Meeting – April 2018
At the beginning of the project, a stakeholder meeting was held to coordinate the goals and desired outcomes for the greenway and Old Olive projects. Stakeholder representatives were from the cities of Creve Coeur and Olivette, SLEDP, Trailnet, Bayer – Monsanto, and Donald Danforth Plant Sciences Center.

Core Working Team Meetings – June, August and September 2018
Held at the beginning and mid-point in the project, two stakeholder meetings where held to guide the Design Team for the greenway and Old Olive projects to bring them up to date on the project progress, coordinate the outcomes and goals of the two projects, and build buy-in among the stakeholders of the district. Stakeholder representatives were from the cities of Creve Coeur and Olivette, SLEDP, Trailnet, Bayer – Monsanto, and Donald Danforth Plant Science Center.

Venture Café Outreach – April 2018 and February 2019
Held every third Tuesday of the month, the Venture Café is hosted in partnership with the St. Louis Economic Development Partnership and Donald Danforth Plant Sciences. It is free event that offers attendees the opportunity to make new connections while learning about a wide range of new technology related topics.

The design team worked with the St. Louis Economic Develop Partnership and Danforth Center to build on this established event by attending three different Venture Café events to provide information and collect feedback. On two separate occasions, the team provided maps, renderings, email list sign-up sheets and comment cards and met with attendees to answer questions and talk through the design concepts.

Street Design Party – October 2018
A public open house was held at a vacant retail space in the Pavilion Development just south of Old Olive Street Road. The design team provided a station-based informational open house. Over 60 attendees took part in reviewing the projects historical information and learned about the draft design concept for the area. Attendees were given the opportunity to weigh in on the design concepts and to leave their comments for the team to review and integrate into the design.

City of Creve Coeur Council/Planning and Zoning Meeting – October 2018
After the public meeting, the design team attended the City Council meeting to present a summary of finding and key aspects of the developing design to city leaders. This was an important step towards future approval of the plan by the City Council at the end of the project.

Attendees of the Street Design Party in October 2018

Engagement Activities

Organizational Outreach
Bike to Work Day – May 2018
This event held at the Donald Danforth Plant Science Center included Group Facilitated Discussion and a break-out activity with a large aerial photographic map of the area. The topics of multi-modal transportation, existing bike route, safety, and bike route needs were the focus of the event.

The Jewish Federation Millstone Campus – June 2018
Although outside the City of Creve Coeur, the Jewish Federation's Millstone Campus (The J) is home to several institutions that serve the community and draw users of their facilities from neighborhoods adjacent to the 39°N district and beyond. The design team met with over a dozen officers and leaders that represented the different services offered within the Jewish Federation. This productive work session allowed the design team to learn about the issues and opportunities on the Millstone Campus, traffic flow in and around the campus, possible campus changes and observations about the multi-modal accessibility of the surrounding community.

Willow Brook Neighborhood Meeting – March 2019
The design team presented the 39°N Master Plan context and the proposed design for Old Olive to the Willow Brook Subdivision Annual Meeting. The Design Team answered questions and listened to resident's feedback about the proposed design.

Signage in the community

Final Presentation
Public Meeting – April 2019
A public meeting was held at the Donald Danforth Plant Science Center in the evening. The design team provided a display of project boards and a large plan of the corridor for review by participates before a presentation of the design and question/comment session. Representatives from the design team, SLEDP, the City of Creve Coeur, and City of Olivette were available for questions. Over 75 attendees took part in the event. Attendees were given the opportunity to weigh in on the design concepts and to leave their comments. The attendees filled in the blank to this question

I AM MOST EXCITED ABOUT …

- *Mixed use/greenway, walking area*
- *Better sidewalks to walk my dogs that is not right next to the road. New/better aesthetics*
- *Bike and pedestrian availability. Bringing the area together with a thoughtful plan for the community.*
- *The redesign of Old Olive with greater access, native landscaping*
- *Access across Lindbergh*
- *Face-lift for eastern Olive St. Rd.*
- *Worried about funding and taxes. May need to get budget down?*
- *The link that provides more efficient and reasonable access*
- *The reduced traffic on Old Olive*
- *Reduction of traffic on west bound Old Olive*
- *Old Olive being used and coming alive with fun venues*
- *The potential creation of a unique community that has the ability to walk/ride to eating establishments and interact more as a pedestrian community*
- *The greenway path*
- *Safe bike paths*
- *Mixed use*
- *Shared use path*
- *Connecting Old Olive on both sides of Lindbergh.*
- *Opportunity to create shared use path similar to 5th Street in St. Charles*
- *Improved traffic flow and shared use paths. Proposed north-south Greenway connection is great*
- *Looks great! Renewed area. Hopefully the next cortex. I do have concern with possible noise if Guelbreth is extended to Olive.*
- *Safe pedestrian traffic through Lindbergh*
- *NOT excited about putting any connecting road behind Carriage House Condominiums*
- *The overall vision of creating an urban village and identity for 39N*

Boards and large plan at the Public Meeting in April 2019

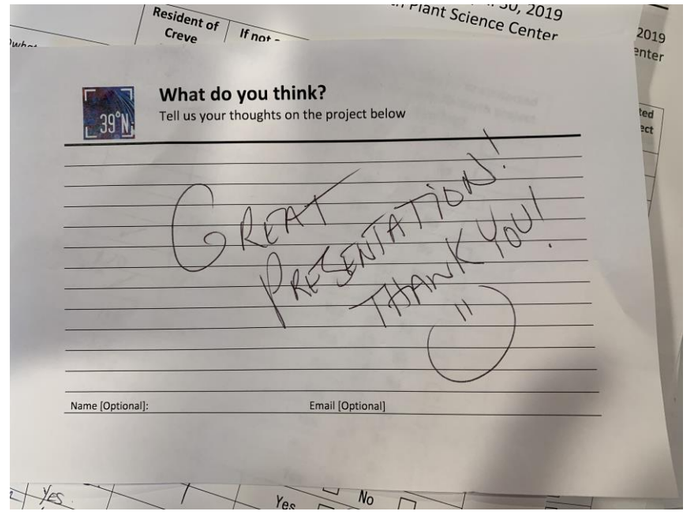
Engagement Activities

Public Meeting Continued

Attendees were also asked an open-ended question to obtain feedback on their thoughts and concerns after reviewing the boards, talking to the design team, and hearing the presentation. Comments were received on the engagement form with names optional.

WHAT DO YOU THINK?

- *Pragmatic vision, ties area together well, pedestrian friendly, urban space with comfort.*
- *I think the proposed connection roads between Old Olive and Olive are necessary. Make sure new traffic signals are synchronized with existing signals. Use native plants in planted areas, bury utility lines. Will service bikes use the shared-use path or would the money be better spent on a bike lane? Incorporate solar panels for some of lights, etc. Integrate permeable surfaces into shared-use path.*
- *Is there a plan for new stop lights entering and exiting Lindbergh & Olive Street Road? It appears that this would add to the congestion on Olive Street Road. – Lota Moore*
- *Concerned about getting out of our subdivision. Concerns – still need a dedicated right turn only lane at Old Olive and Lindbergh for sure going east on Old Olive turning south on Lindbergh and also probably on Old Olive West turning North on Lindbergh. Otherwise you are going to have a traffic backup on Old Olive. Concerned about what the rebuilding of Lindbergh/Olive interchange will do to traffic as the construction takes place. Concerned that you do not have the "purple" connectors funded. – Laurel Jones*
- *We currently own 10137 Old Olive Street Road (Strawberry Stitch Co.) We operate a food truck out of this location that must back in to our parking. The center island displayed in the proposal will prevent us from doing this. I like the greenway plan but the island at this location dividing Old Olive will cause us hardship. I suspect the fiat dealer will have issue as well because they have trucks that must back into their side. – Thomas*
- *I'm still concerned about traffic congestion through the Village Section.*



Engagement form

- *Very excited about the overall project. Equally concerned about the eastbound left turn lane off of Olive onto Old Olive. I feel like if I am in last car in line waiting to turn left, I am subject to rear ending or side swiping by the through traffic on Olive. – Colleen Kashif*
- *I love the idea of creating a more cohesive community. I have great hope that non-chain, higher end restaurants and bars.- Hugves Belanger*
- *Looking forward to the proposed changes.*
- *Beautiful ideas. Worry about costs and who pays. How will people get to the JCCA? Will they go on Guelbreth? From Old Olive? – Rose Malt*
- *This is definitely an area that is in transition. I like your proposals. Always a concern about traffic flow. I hope future traffic studies can help assuage these concerns. – Mary Lynn B.*
- *LOTS OF STOP LIGHTS! Anyway to fix that? There are already so many traffic issues in that area – cannot see how even more stop lights cannot be a good thing. Love the concept – dislike the roadway concepts.*
- *As a City Creve Coeur has remained out of site (from Lindbergh).The Danforth Science Center should become an anchor of our communities. – David Thorpe*
- *I am glad that Old Olive Street can be connected with both sides of Lindbergh. Currently I cannot go south Lindbergh when I use Old Olive St from East of Lindbergh. The new plan will solve the problem.*
- *Promising, consider turn radius where there are "in street" medium dividers. – Lise*
- *Very excited about the overall project. Equally concerned about the eastbound left turn lane off of Olive onto Old Olive. I feel like if I am in last car in line waiting to turn left, I am subject to rear ending or side swiping by the through traffic on Olive. – Colleen Kashif*
- *I love the idea of creating a more cohesive community. I have great hope that non-chain, higher end restaurants and bars.- Hugves Belanger*
- *Looking forward to the proposed changes.*
- *GREAT PRESENTATION! THANK YOU!*

This feedback is important for the implementation phase of the project. A check list of common themes such as traffic and congestion concerns, individual property issues, and stated priorities will be maintained and referenced for each phase.

Presentation at the Public Meeting in April 2019

IMPLEMENTATION RECOMMENDATIONS

IMPLEMENTATION RECOMMENDATIONS

Zoning and Policy Changes to Support Transformation

Document Old Olive engineering standards

The traffic assessment indicated that Old Olive can function at an appropriate level as a two-lane road. The Convertible Section provides the flexibility in the future to expand the roadway for turn lanes, etc. The key to maintaining the Convertible Section's flexibility is to be consistent in its implementation and avoid locating infrastructure or important aesthetic improvements in the flexible green space at intersections. Planning for future phases during engineering and design of a current phase is prudent.

Leverage building setbacks and private landscape buffers for public realm improvements on private property to enhance the pedestrian experience.

The building setbacks are a visual and physical resource for public realm improvements due to the fact that they cannot be used for structures. There are options to leverage this space for private and public benefit during private improvements that require a permit. Options include:

1) Require right of way dedication of the building setback on each side of Old Olive
2) Require plantings on the north side of Old Olive
3) Require a sidewalk adjacent to the shared-use path on the south side
4) Coordinate pedestrian amenities such as plazas, art, outdoor dining, etc. in building set backs

Encourage the development of the east and west connector roads with the redevelopment of the interchange sites

The redevelopment sites at the northwest and northeast quadrants of the interchange play a pivotal role in the transformation of the Old Olive corridor and Olive Boulevard frontage. The connector roads are not only access points to the redevelopment sites, they are vehicular, bike, and pedestrian connections into the district that are blocked today. These sites are well positioned to potentially benefit the site development needs of Lou Fusz. Coordinate interchange redevelopment sites with Lou Fusz parking needs. To enhance through-district connectivity, connect Guelbreth to west connector road.

Revise the zoning ordinance for General Commercial to reflect the needs of the district and/or create an overlay district

The current code for General Commercial is geared around convenience retail shopping and services. The structures can be freestanding or part of a small scale commercial development. Setbacks are 10' minimum, site coverage is 63% (70% max) and a floor area ratio of 0.4. In order to change the character of development and to encourage street-front mixed use, revisions to the ordinance may include incentives such as: increase site coverage if setback amenities are provided, shared parking options, etc.

Adapt the Joint Parking Facilities ordinance to benefit redevelopment

Redevelopment goals focus on multi-family residential and mixed-use development. It is desirable for new development to be dense and have a street-focused presence without front parking lots. The Vue and Vanguard Heights apartment developments are examples of this. Parking is provided in dedicated parking garages. The Pavilion development is considered overparked by the City of Creve Coeur. Coordinated parking is a potential strategy for the district coupled with other multimodal transportation options to right-size parking numbers.

Develop bike/ped loop and bridge over Lindbergh to activate redevelopment sites

The proposed bike/ped bridge over Lindbergh is a route that is parallel to the shared use path with a bridge that crosses over Lindbergh. By locating the loop at the northern boundary of the redevelopment sites, it activates this frontage, provides bike/ped amenities, and makes these sites more attractive for development. This project is not dependent upon implementation of the streetscape if agreements with current property owners can be reached.

Zoning and Policy Changes to Support Transformation

Work with Missouri American Water and owners of 10015 Corporate Square to develop a shared use path on private property for a logical link to the district greenway

East of Lindbergh, the shared use path moves from the south side of Old Olive to the north side of Old Olive for alignment with the district greenway and will require additional right of way. There is underutilized private frontage at these two properties.

Develop Streetscape, Landscape and Environmental Graphic Design standards

Building off this document, design guidelines for the corridor should be created to guide the incremental implementation of the project. As development occurs in the district, this document will also set the expectation for level of finish, function, and aesthetics. The guideline document should document the native landscape palette, hardscape materials palette, and graphic design elements and applications.

When requesting Federal Funding, plan for additional city funding beyond the minimum match to pay for non-participating improvements

The Old Olive design locates all the core components of the project - roadway, shared use path, sidewalk, lighting, bus stops, and landscaping - in the 60' right of way to allow these critical components to be implemented with minimal additional right of way. Most of these element are participating costs in Federal funding programs. However, to achieve an optimized project, additional public funds should be allocated to pay for non-participating components such as decorative pavements, art, improvements on private property, irrigation, etc.

Meet with Metro frequently to update them on the district and lobby for good bus connectivity

Bus transit currently travels on Old Olive and has a connection to the north on Guelbreth. Future changes may move the bus routes to Olive Boulevard only. It is beneficial to preserve the bus stops on Old Olive, provide bus service to the residents along Guelbreth, and provide a direct connection to The J in the future.

ACKNOWLEGEMENTS

CORE WORKING GROUP

Janet Wilding	Vice President of Major Projects, St. Louis Economic Development Partnership
John Hancock	Project Coordinator Major Projects, St. Louis Economic Development Partnership
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Julie Padberg–White	FPA Group
Kate Collignon	HR&A Advisors
Conor Muldoon	HR&A Advisors

APPENDICIES

ECONOMIC DEVELOPMENT

TECHNICAL
- Civil engineering
- Electrical and lighting
- Traffic model and signalization

ECONOMIC DEVELOPMENT

Market Analysis and Development Principals for District Transformation

Market Analysis Summary
The successful execution of a Great Streets place making investment requires that plans and development concepts are rooted in a robust understanding of market conditions and economic feasibility. The market analysis builds from the robust understanding of market conditions and economic feasibility developed during the 39°North Master Plan. This work provides updates to the current trajectory of rents, occupancy, and absorption for the potential future land uses that could be introduced to the corridor, including multifamily residential, retail, office, and hotel, with the goal of understanding opportunities for near- and long-term development potential.

Development Potential and Implementation Roadmap Summary
A critical goal of the Great Streets Initiative is to encourage place-based investments that catalyze private investment to drive increases in property values and generate funding streams to support additional capital investments, operations, and maintenance. The Development Feasibility Assessment advances the understanding of the financial feasibility of acquisitions and development for identified soft sites. The Implementation Roadmap incorporates the team's market and development feasibility understanding with the goals of the Great Streets Initiative to consider how project feasibility at individual sites will be influenced by catalytic infrastructure investments. The Roadmap provides a set of actionable recommendations on a ten-year time horizon that prioritize the execution of near-term achievable activities.

Old Olive Development Principles
Multifamily Residential
- Multifamily residential has the strongest near-term development potential as it requires the least subsidy to achieve positive development economics
- Multifamily residential uses are most appropriate to the west of Lindbergh, and should be concentrated near existing multifamily-family developments where the market has already shown strength
- Preferable sites for first moves should be located farther away from the Lindbergh intersection to allow for potential room for commercial offices as the market expands

Commercial Office
- Commercial Office uses should be prioritized to east of Lindbergh in fulfillment of 39°N Master Plan vision for a Mixed-Use Center
- As the market evolves, offices uses could potential expand west from Corporate Square along Old Olive and to the Old Olive/Lindbergh intersection

Retail
- Wherever feasible, retail should be incorporated into the ground floor along Old Olive and should prioritize frontages on Old Olive instead of side streets in order to take advantage of emerging pedestrian and vehicle visibility and to not disperse the market
- Infill opportunities for restaurant uses should concentrate in The Village at 39°N – west of the Old Olive/Lindbergh intersection

Attachments
- Market Scan
- Development Potential Analysis
- Implementation Roadmap

OLD OLIVE GREAT STREETS

Implementation Roadmap

December 17, 2018

STLPARTNERSHIP

CHRISTNER

HR&A Analyze. Advise. Act.

1 GREAT STREETS INITIATIVE GOALS

2 Soft Site Analysis Overview

3 Infrastructure Overview

4 Implementation & Phasing Principles & Scenarios

With Connector Roads

Without Connector Roads

5 Appendix: Prior HR&A Analysis (Market Scan and Development Potential)

Great Streets Initiative Goals

1. **Connectivity**
   Provide connectivity for residents, businesses, employees, and visitors to safely access amenities throughout the District

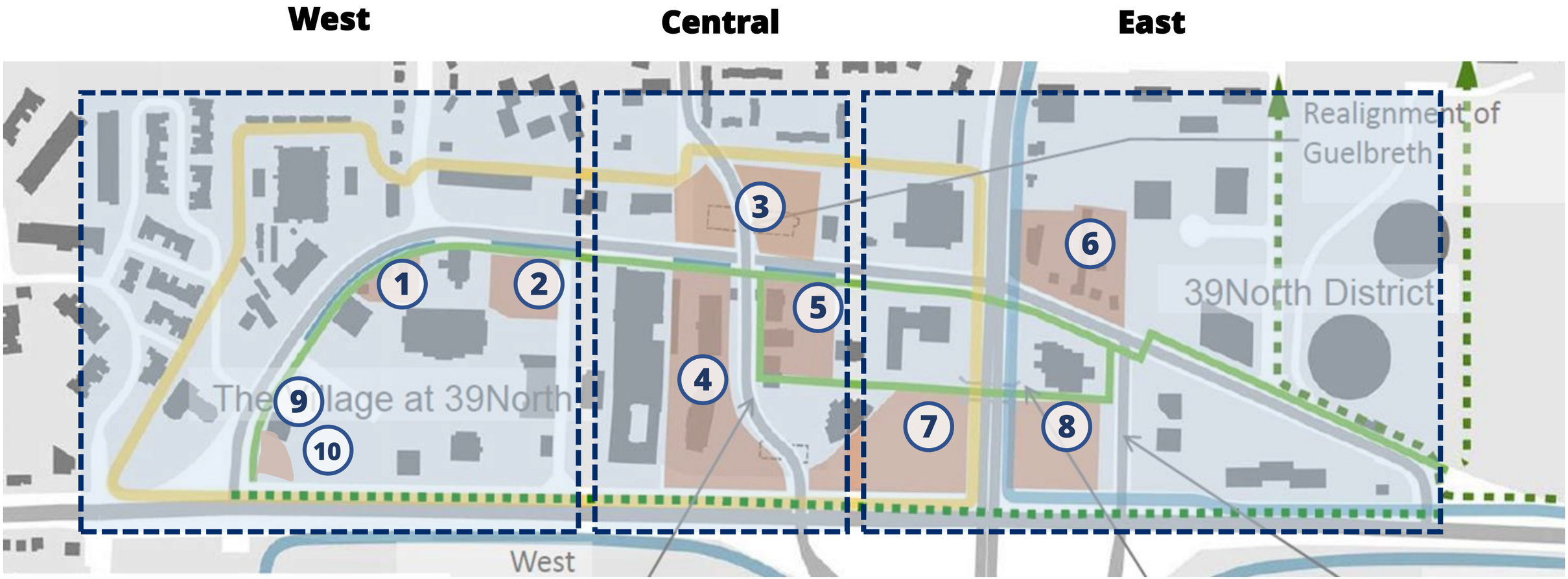
2. **Sense of Place**
   Create a recognizable district by developing physical improvements and a unique aesthetic

3. **Mixed Use**
   Develop a mixed-use corridor that attracts residents, employees, and visitors to experience the District as an 18-hour destination

4. **Future-Minded**
   Plan for the future by leveraging interchange transportation advantages, connector road access, and district-wide redevelopment opportunities

5. **Accessibility**
   Provide a multi-modal crossing at Old Olive and Lindbergh that improves accessibility for users and provides a vital linkage between the east and west segments of the corridor

Great Streets Initiative Goals | Applying these goals, infrastructure and soft sites have been identified in three districts.



1 Great Streets Initiative Goals

2 SOFT SITE ANALYSIS OVERVIEW

3 Infrastructure Overview

4 Implementation & Phasing Principles & Scenarios

With Connector Roads

Without Connector Roads

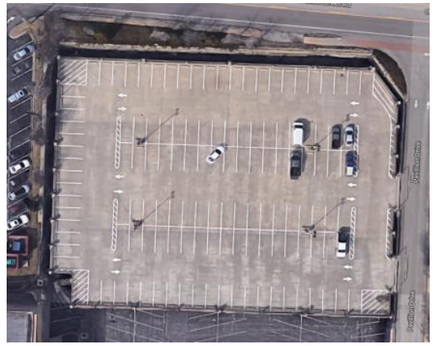
5 Appendix: Prior HR&A Analysis (Market Scan and Development Potential)

Soft Site Analysis Overview | HR&A conducted a development feasibility analysis to identify and prioritize opportunities for redevelopment.

1. **HR&A examined market feasibility for different product types along the Old Olive Corridor.**
   - Residential generates the greatest value, and is likely to be the nearest term mover within the market.
   - All other uses are likely to require subsidy.
   - There are a large number of identified soft sites along Old Olive. Many are occupied by tenanted buildings that provide an ongoing revenue stream for property owners, and are unlikely to generate enough redevelopment value to incentivize development under current market conditions.
   - Neighborhood infrastructure improvements will generate value, and increase development feasibility.

2. **HR&A tested the market value of income-generating property, to understand acquisition costs associated with identified soft sites.**
   - Using district-wide market scan inputs, HR&A estimated the capitalized value of existing uses for each site
   - Existing uses increase site acquisition costs from ~$15/sf of land (vacant) to up to ~$35/sf of land.

3. **HR&A compared the estimated future value of a mixed-use development program to site acquisition and construction costs to identify the order-of-magnitude funding gap**
   - Residential development on green field sites should pencil in the near term. Sites with existing uses, and/or mixed-use development programs, require subsidy. Where subsidy is needed, total need grows with development size.
   - Prioritizing infrastructure investments proximate to sites that are closest to being ***feasible for assemblage*** and have the smallest financial gap for development can attract private investment faster – especially if these are at ***catalytic*** locations.



	1	2	3
Use	Retail & Office	Structured Parking	Collision Center
Acreage	0.5 Acre	1 Acre	3 Acres
Challenges	Three different owners and small individual lots	Requires replacement parking	N/A
Opportunities	Direct access to Old Olive, located at the Western gateway of the district	Could reposition for district parking, could add retail along the front wall	Owned by Lou Fusz, has expressed interest in repositioning properties
Impact	Update aging building stock	Fill in empty street wall – connecting strong residential nodes	Existing use is blighting and not in line with vibrant district
Assemblage Feasibility	Fragmented ownership	High, pending district parking needs	Lou Fusz use and ownership
Funding Gap (Per Future Built SF)			

N →

	4	5	6
Use	Multifamily Residential Condo	Office	Retail
Acreage	3 Acres	1 Acre	1.5 Acres
Challenges	Existing multifamily with 40+ individual owners	Access road running between parcels would require additional assemblage or new access; multi-tenant buildings	Fragmented ownership
Opportunities	Streetfront open space	Two properties already for sale	Visible and accessible corner, single tenant occupancy
Impact	🟡 Existing buildings are low quality but provide residential density	🟡 Small street wall with limited visibility	🟢 Corner site, closest to Innovation District
Assemblage Feasibility	🔴 Difficult acquisition with many owners	🟡 2 of 4 parcels are currently for sale	🟡 5 single use owners/tenants
Funding Gap (Per Future Built SF)	🔴	🔴	🔴

	7 / 8	9	10
Use	Road	Surface Parking Lots	Lawn/Open Space
Acreage	3.5 Acres	0.3 Acres (each, total 0.6 Acres)	0.2 Acres
Challenges	Site accessibility	Parking requirements Small parcel size may impact development potential	Removal of green space Small parcel size may impact development potential
Opportunities	Large-scale greenfield development	Reinforce street wall and anchor entrance to the retail node	Reinforce street wall and anchor entrance to the retail node
Impact	🟢 Potential for district-defining new development	🟢 Add vibrancy to retail node	🟢 Attractive gateway to western end of district
Assemblage Feasibility	🟢 Pending ownership and infrastructure	🟡 Surface parking, dependent on parking requirements	🟡 Surface parking, dependent on parking requirements
Funding Gap (Per Future Built SF)	🟢	🟢	🟢

	1	2	3	4	5	6	7/8	9	10
Impact	🟡	🟢	🟢	🟡	🟡	🟢	🟢	🟢	🟢
Acquisition Feasibility	🟡	🟢	🟢	🔴	🟡	🟡	🟢	🟢	🟢
Funding Gap (Per Future Built SF)	🔴	🟡	🟡	🔴	🔴	🔴	🟢	🟢	🟢

1 Great Streets Initiative Goals

2 Soft Site Analysis Overview

3 INFRASTRUCTURE OVERVIEW

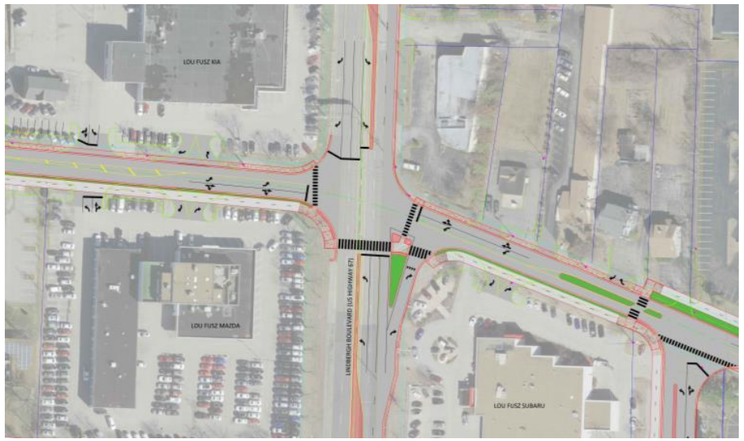
4 Implementation & Phasing Principles & Scenarios

With Connector Roads

Without Connector Roads

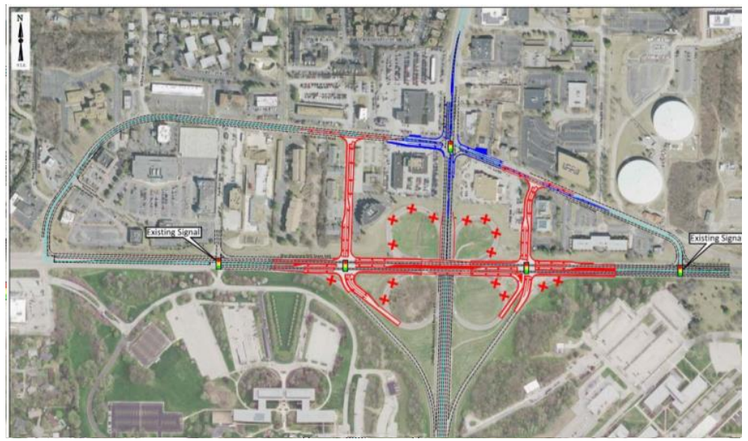
5 Appendix: Prior HR&A Analysis (Market Scan and Development Potential)

Infrastructure Overview



Full Access Intersection

Comprehensive Roadway



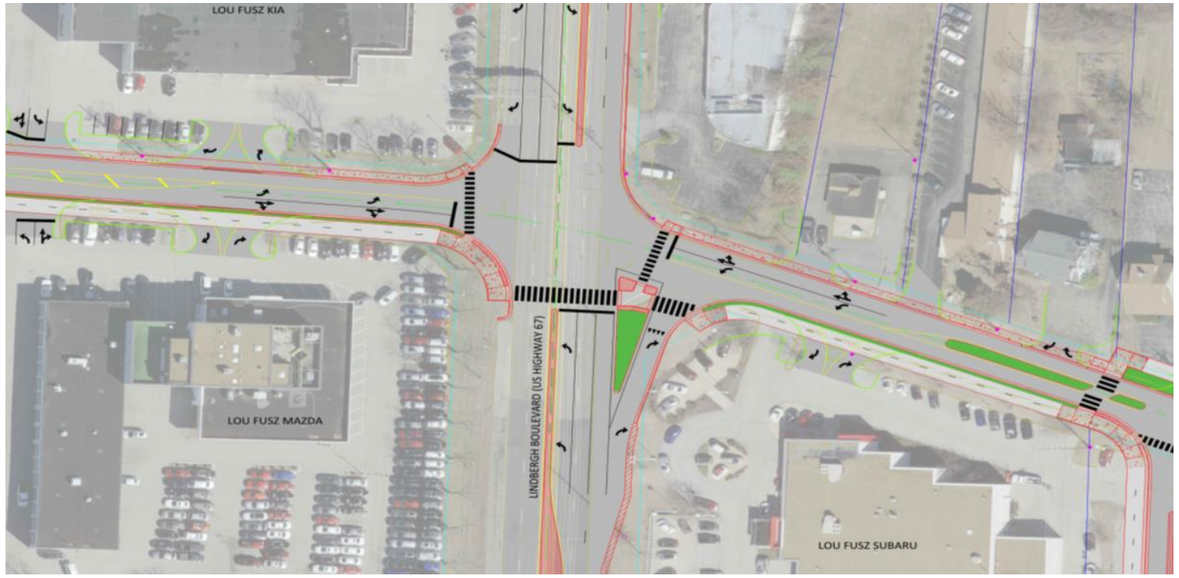
Connector Streets

Bike & Pedestrian Bridge

Parks & Green Infrastructure

Gateways

Full Access Intersection at Lindbergh & Old Olive



Lead: SLEDP (with local sponsor - either St. Louis Transportation Dept. or City of Creve Coeur)

Support: City of Creve Coeur and/or SLEDP and MoDOT

Construction Cost: $2.5M

Development Opportunities and Impacts

- Addresses primary physical barrier and significantly increases district connectivity and multimodal access
- Enhances access to development sites

Implementation Challenges and Dependencies

- Opportunity for cost-sharing agreement with MoDOT
- Requires ROW donation and MoDOT cooperation

Most Impacted Soft Sites High Med. Limited

Roadway, Shared Use Path, Storm water, Landscape, Hardscape, Lighting

Comprehensive Road & Bike/Ped Investments

Lead: SLEDP (with local sponsor - either St. Louis Transportation Dept. or City of Creve Coeur)

Support: City of Creve Coeur and/or SLEDP

Construction Cost: $5.6M

Development Opportunities and Impacts

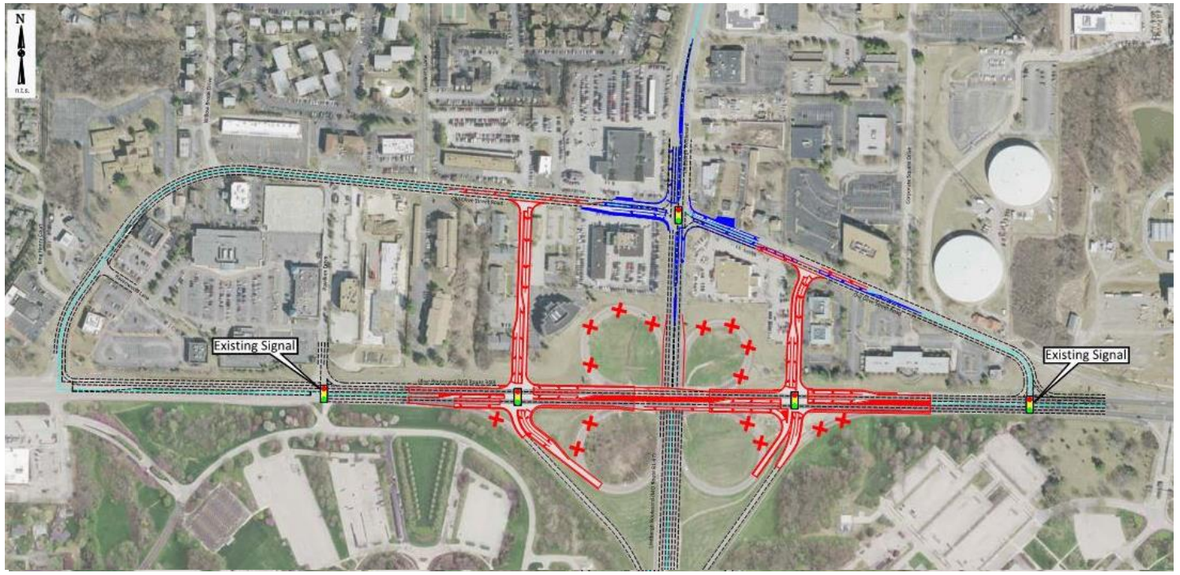
- Activates the entirety of Old Olive, increasing the attractiveness and overall competitiveness of the district

Implementation Challenges and Dependencies

- Requires minor dedication of ROW
- East path requires easement on Missouri American Water and 015 Corporate Square properties
- Requires relocation of electrical utilities

Most Impacted Soft Sites High Med. Limited

Connector Streets



Lead: City of Creve Coeur

Support: Private developer of "clover leaf" sites (Soft Sites 7 and 8)

Construction Cost: TBD

Development Opportunities and Impacts

- Breaks up super blocks and increases development frontage on desirable infill parcels
- Greatly enhances accessibility to large greenfield development opportunities

Implementation Challenges and Dependencies

- Requires site acquisition with condo ownership and associated approvals to convert privately-held land for public use
- Contingent upon determined acquisition strategy and/or cooperation with existing owners

Most Impacted Soft Sites

High Med. Limited

Bike & Pedestrian Bridge over Lindbergh

Lead: City of Creve Coeur

Support: Developer of "clover leaf" sites/ other private property owners

Construction Cost: TBD

Development Opportunities and Impacts

- Provides additional access for Soft Sites 7 and 8
- Enhances connectivity to Great Rivers Greenway, attracting a regional bike audience

Implementation Challenges and Dependencies

- Contingent upon development schedules of Soft Sites 7 and 8
- Requires cooperation with existing private property owners

Most Impacted Soft Sites High Med. Limited

Parks & Green Infrastructure

Most Impacted Soft Sites High Med. Limited

Lead: City of Creve Coeur

Support: SLEDP

Construction Cost: TBD

Development Opportunities and Impacts

- Enhances amenities and property values of adjacent parcels
- Increase health benefits to residents and shoppers

Implementation Challenges and Dependencies

- Contingent upon sewer investments included in Comprehensive Roadway Investments
- Requires maintenance agreement with Metropolitan St. Louis Sewer District
- Design depends on stormwater analysis associated with Comprehensive Roadway investments

Gateways

Lead: 39 North Cooperative – City of Creve Coeur, City of Olivette, Danforth Plan Science Center, The J

Support: SLEDP

Construction Cost: $660k

Development Opportunities and Impacts

- Markets the district to Olive Blvd automobile traffic and development community
- Strengthens district cohesion
- Enhances wayfinding

Implementation Challenges and Dependencies

- Requires strong, attractive, activating tenants
- Requires a cohesive community brand

Most Impacted Soft Sites

High Med. Limited

1 Great Streets Initiative Goals

2 Soft Site Analysis Overview

3 Infrastructure Overview

4 IMPLEMENTATION & PHASING PRINCIPLES & SCENARIOS

With Connector Roads

Without Connector Roads

5 Appendix: Prior HR&A Analysis (Market Scan and Development Potential)

Implementation & Phasing Principles

1. Target Infrastructure Investments to Catalyze Near Term Development

- Strategically deploy infrastructure in a geographically concentrated manner to amenitize individual parcels and influence development feasibility

2. Address Physical Barriers of N Lindbergh Blvd to Draw Energy from Danforth

- Improve traffic flow through Four Way Left Turn Intersection
- Enhance connectivity through Multiple Use Path and Bike/Pedestrian Bridge

3. Leverage Existing Retail/Commercial Strengths

- Prioritize infill parcels with desirable frontage opportunities to address street wall gaps
- Advance necessary acquisitions prior to the capital investments in value generating improvements
- Time incentivization of new development to reap value from new infrastructure

4. Minimize Parcel Acquisition Costs and Delays, and Leverage Value from Infrastructure

- Focus on publicly-owned land from MoDOT Folded Clover Interchange and/or aligned property owners
- Avoid parcels with condo ownership structure

Scenarios | HR&A developed two scenarios pending the implementation of the connector roads.

Scenario 1
With Connector Roads

Development Impacts
- Breaks up super blocks and increases development frontage on desirable infill parcels (Soft Sites 4, 5, and 6)
- Significantly enhances accessibility to large greenfield development opportunities (Soft Sites 7 & 8)
- Concentrates investment and activates central node of district

Phasing Impacts
- Focus initial infrastructure and vertical development efforts on **East** and **Central** nodes

Acquisition Impacts
- Requires acquisition of multiple parcels (Soft Sites (3 and 5)

Scenario 2
Without Connector Roads

Development Impacts
- Reduces development frontage and site connectivity in **Central** node

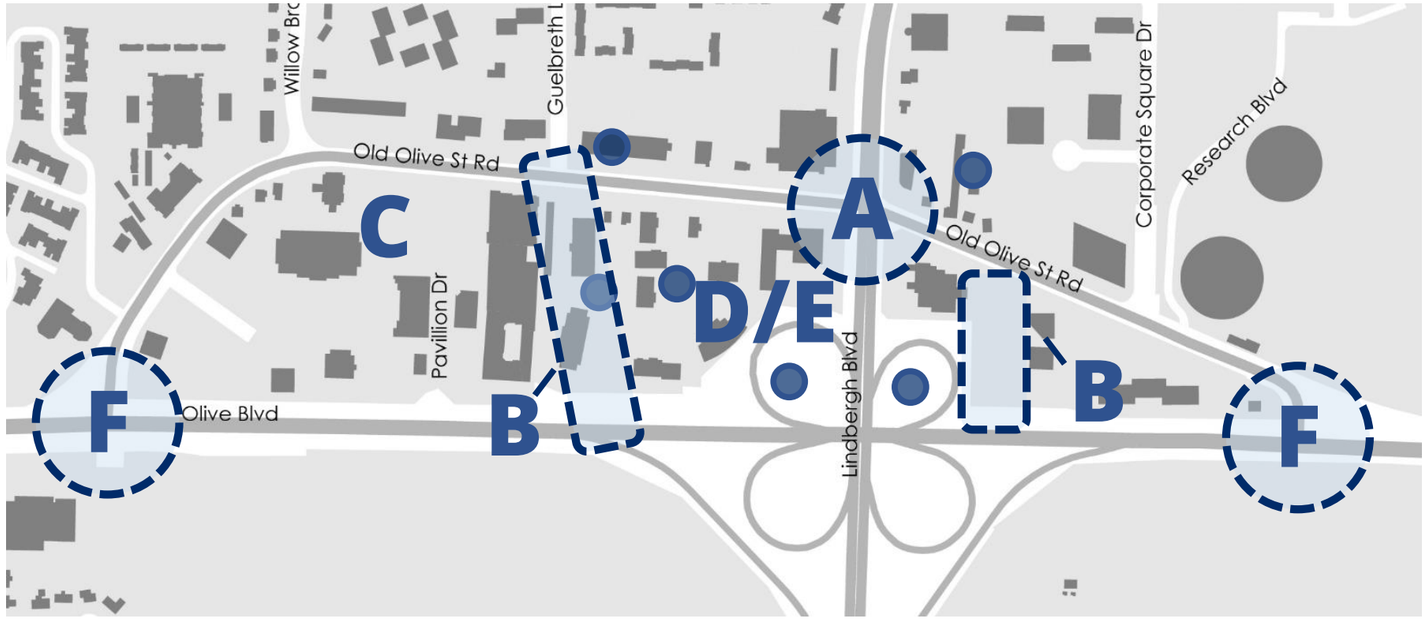
Phasing Impacts
- Increases importance of Western node
- Employ a **district-wide** infrastructure phasing
- First vertical development occurs in **Western** node (smaller sites)

Acquisition Impacts
- Reduces need to acquire parcels, if any

Scenario I | Prioritize East & Central Districts (with Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



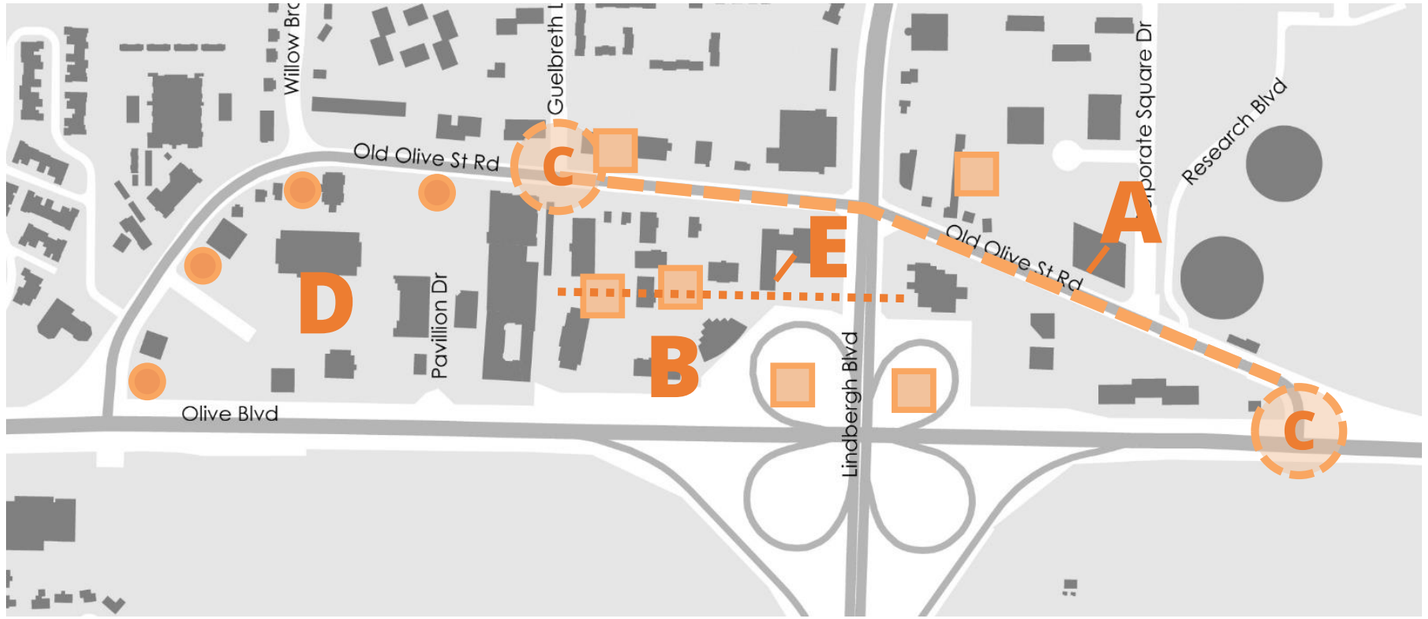
PHASE 1

A. Reconstruct Old Olive/Lindbergh intersection
B. Advance connector roads
C. Determine district parking strategy
D. Determine acquisition / incentives strategy
E. Advance **East** & **Central** acquisitions
F. Develop Gateways

Scenario I | Prioritize East & Central Districts (with Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



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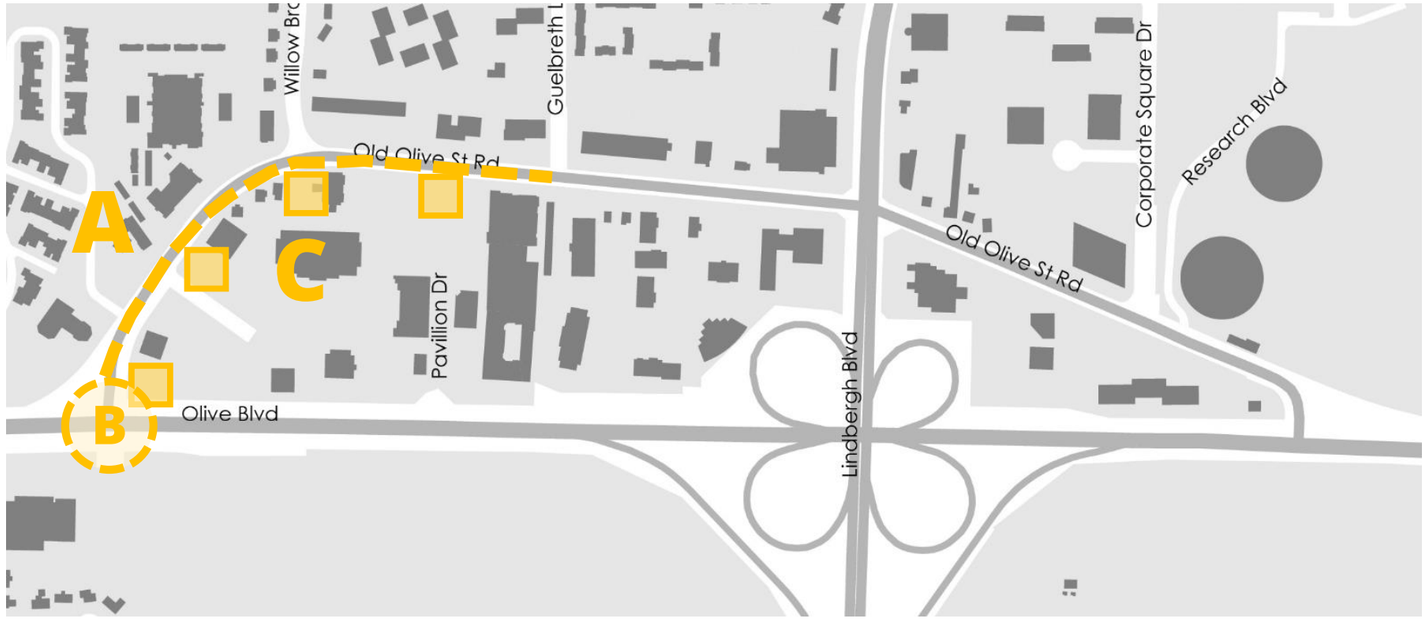
A. Construct roadway & shared use path (including landscape/hardscape/lighting) and storm water infrastructure in **East** & **Central**
B. Develop **East** & **Central** soft sites in conjunction with roadway investments
C. Build **East** & **Central** stormwater parks
D. Advance **West** acquisitions (if any)
E. Construct bike and pedestrian bridge

Scenario I | Prioritize East & Central Districts (with Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



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E. Advance **East** & **Central** acquisitions
F. Develop Gateways

PHASE 2

A. Construct roadway & shared use path (including landscape/hardscape/lighting) and storm water infrastructure in East & Central
B. Develop East & Central soft sites in conjunction with roadway investments
C. Build East & Central stormwater parks
D. Advance West acquisitions (if any)
E. Construct bike and pedestrian bridge

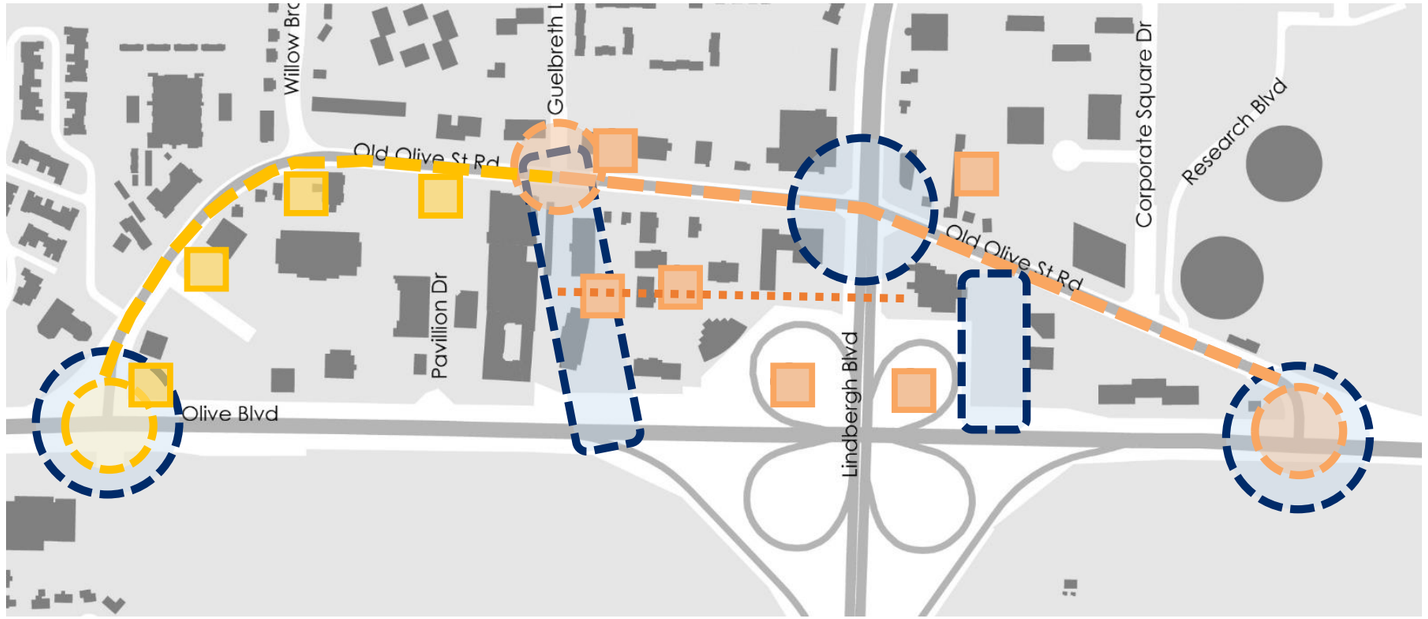
PHASE 3

A. Construct roadway & shared use path (including landscape/hardscape/lighting) and storm water infrastructure in **West**
B. Build **West** stormwater parks
C. Develop **West** soft sites

Scenario I | Prioritize East & Central Districts (with Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



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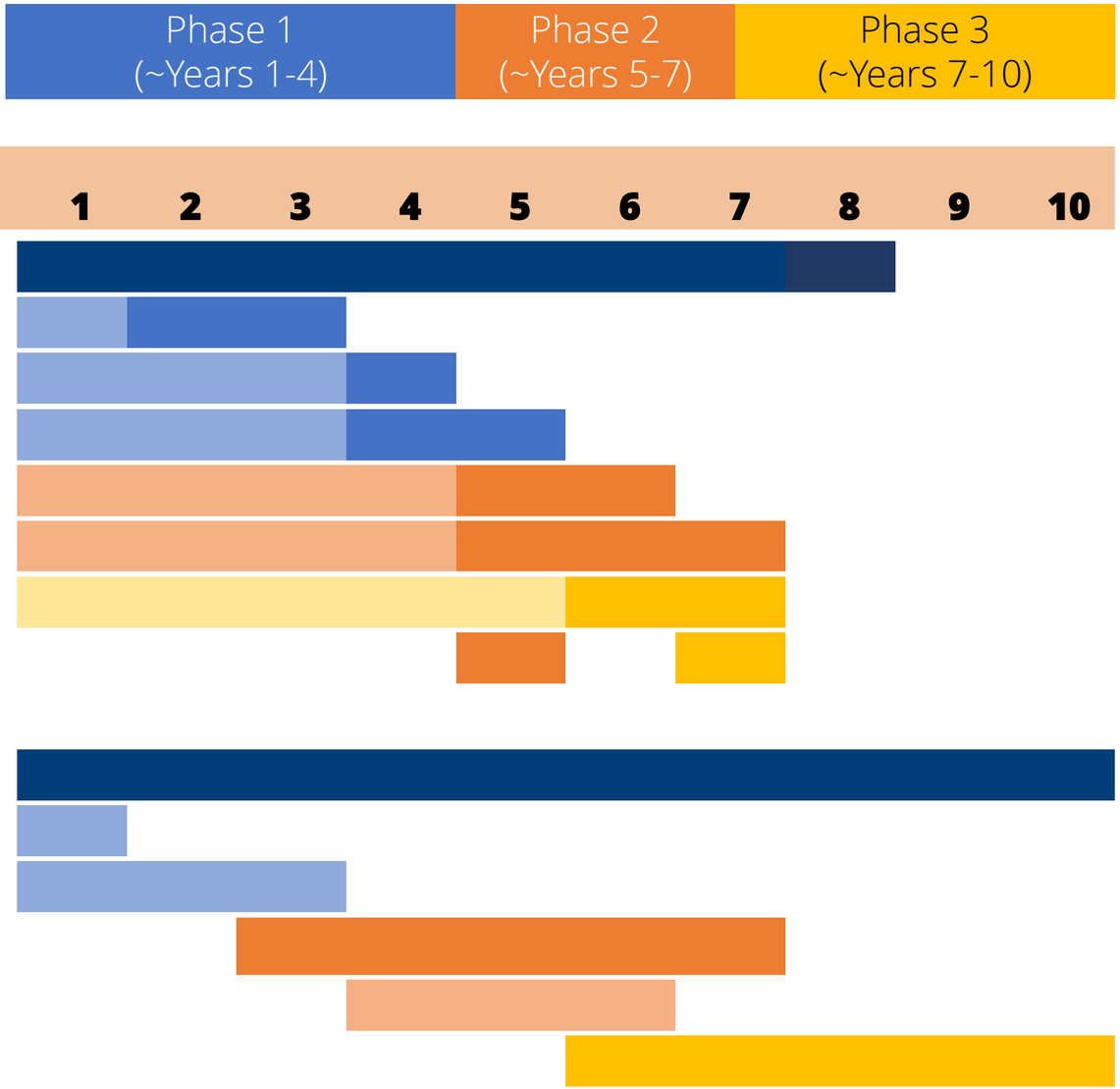
PHASE 3

A. Construct roadway & shared use path (including landscape/hardscape/lighting) and storm water infrastructure in **West**
B. Build **West** stormwater parks
C. Develop **West** soft sites

Scenario I | Prioritize East & Central Districts (with Connector Road)

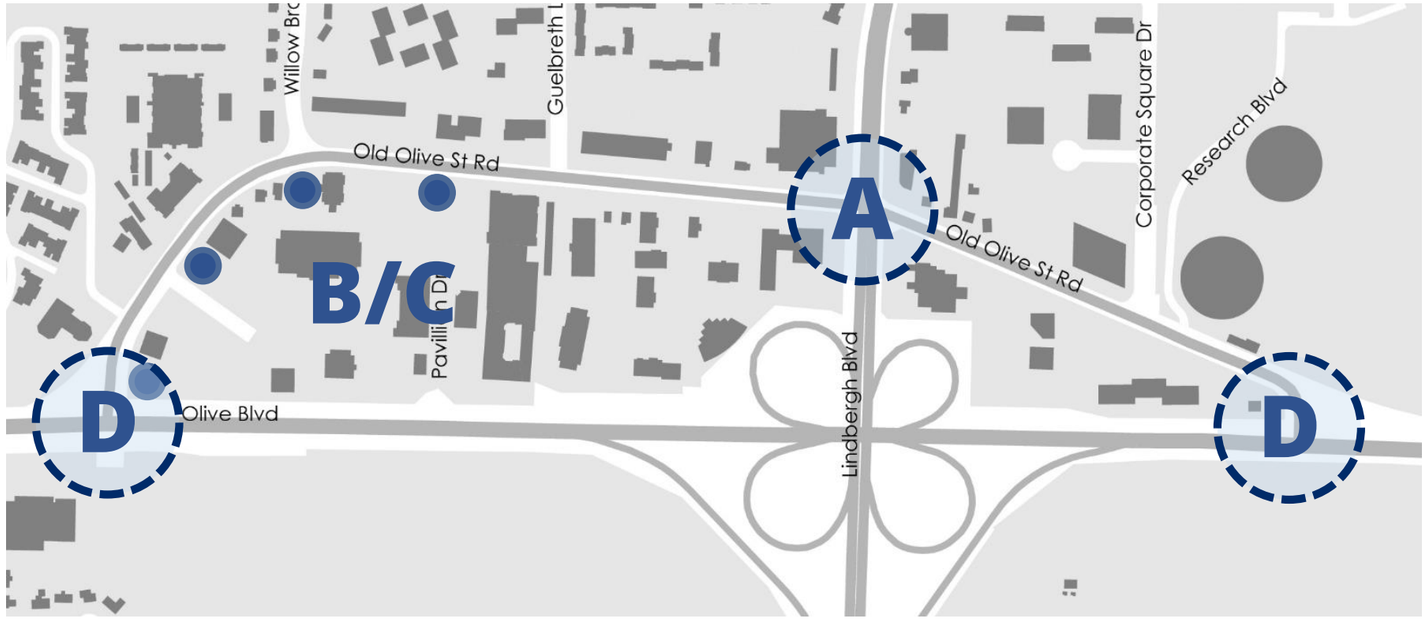
Category	Lead	Support
Infrastructure		
Gateways	City of Creve Coeur	SLEDP
Full Access Turns at Old Olive and Lindbergh	SLEDP	City/MoDOT
Connector Roads	City of Creve Coeur	Site Owners
East Road and Bike/Ped Investments	SLEDP	City of CC
Bike and Pedestrian Bridge over Lindbergh	City of Creve Coeur	Site Owners
West Road and Bike/Ped Investment	SLEDP	City of CC
Parks and Green Infrastructure (E/C, then W)	City of Creve Coeur	SLEDP
Vertical Development		
Determine Acquisitions / Incentives Strategy	SLEDP	City of CC
East and Central Acquisitions (if any)	City of Creve Coeur	SLEDP
East and Central Site Development	Devel. Partners	City/SLEDP
West Acquisitions (if any)	City of Creve Coeur	SLEDP
West Site Development	Devel. Partners	City/SLEDP



Scenario II | Prioritize West District (without Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



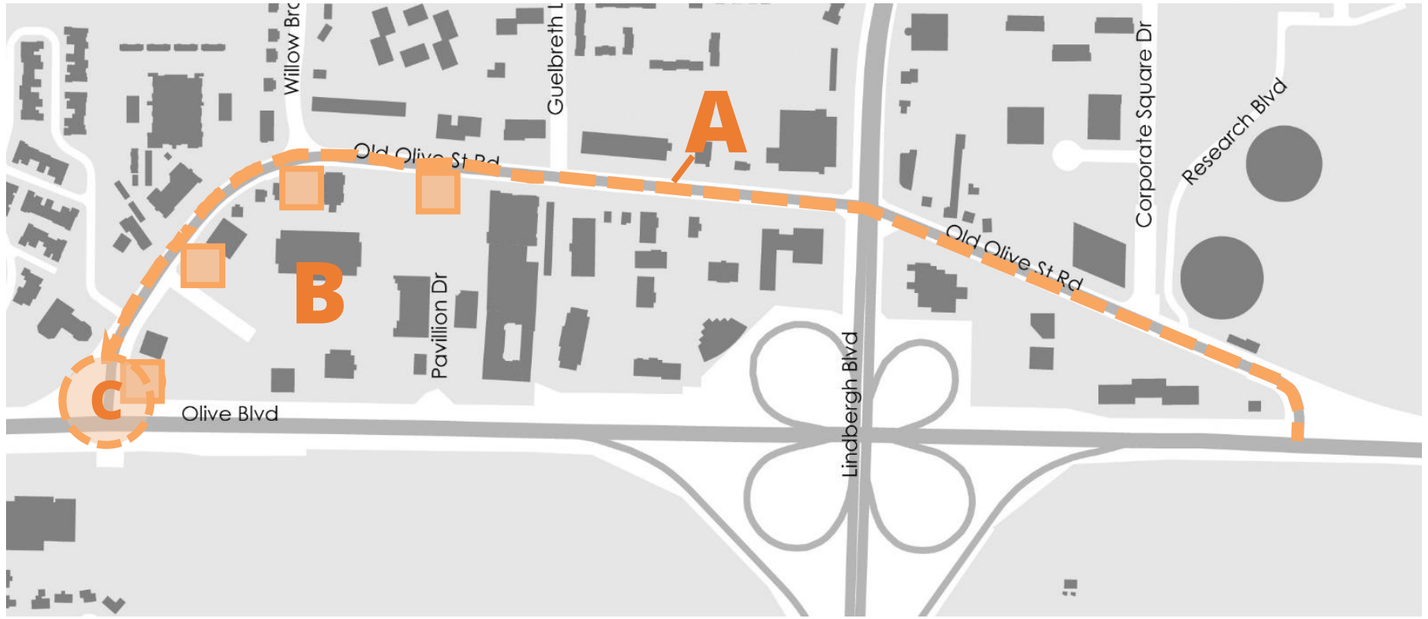
PHASE 1

A. Reconstruct Old Olive/Lindbergh intersection
B. Determine district parking strategy
C. Determine acquisition incentives strategy
D. Advance **East** & **West** acquisitions (if any, no acquisitions in **Central**)
E. Develop Gateways

Scenario II | Prioritize West District (without Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



PHASE 1

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B. Determine district parking strategy
C. Determine acquisition incentives strategy
D. Advance East & West acquisitions (no acquisitions on Central)
E. Develop Gateways

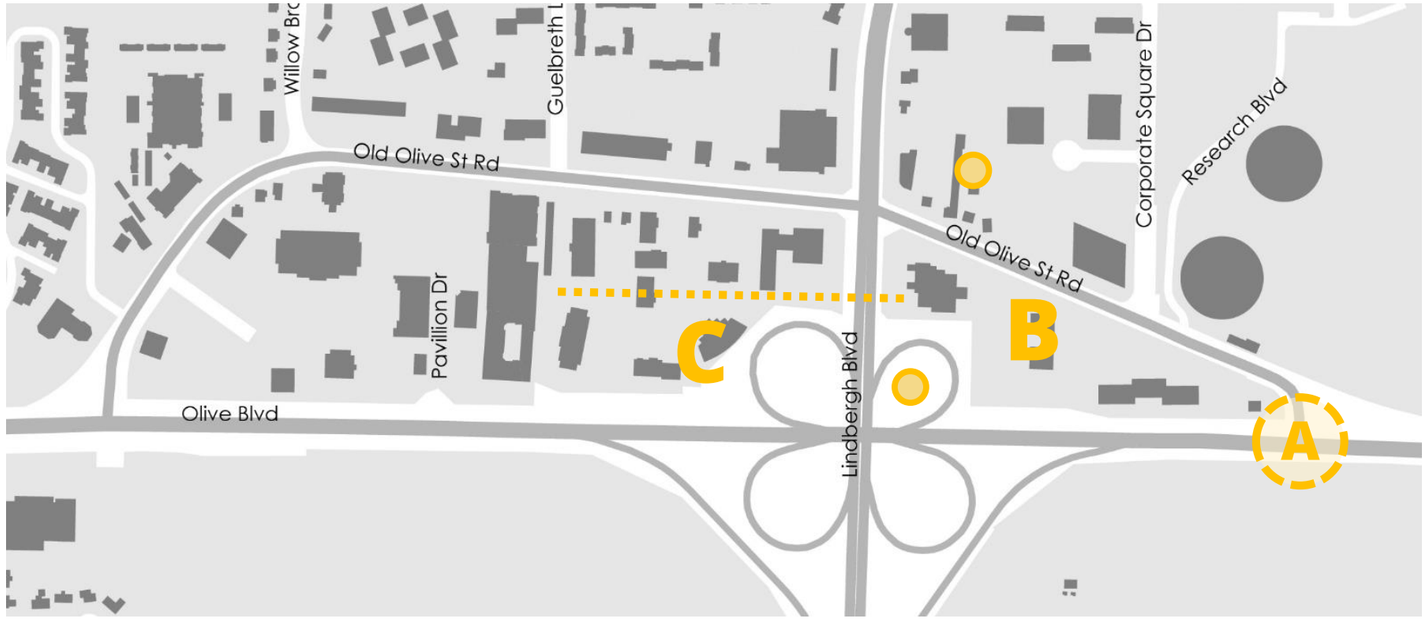
PHASE 2

A. Construct roadway & shared use path (including landscape/hardscape/lighting) and storm water infrastructure **district-wide**
B. Develop **West** soft sites in conjunction with roadway investments (Allow market to guide **Central**)
C. Build **West** stormwater parks

Scenario II | Prioritize West District (without Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



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B. Develop West soft sites in conjunction with roadway investments (Allow market to guide Central)
C. Build West stormwater parks

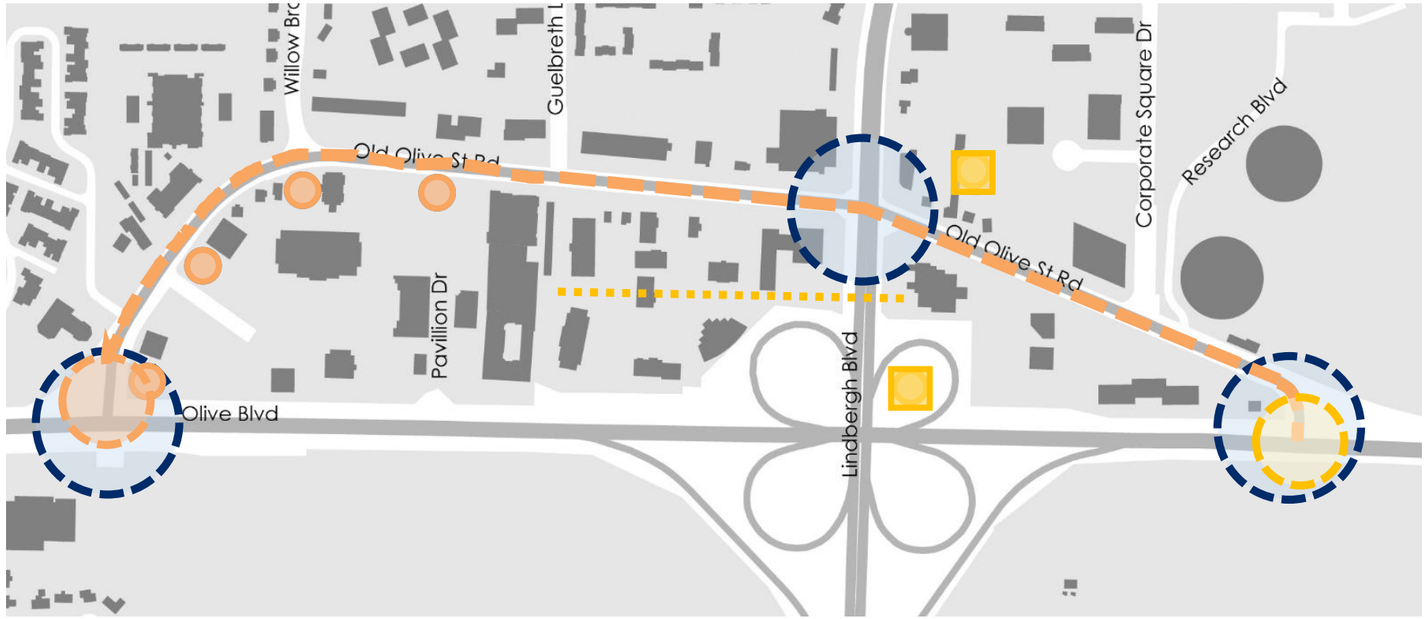
PHASE 3

A. Build **East** stormwater parks
B. Develop **East** soft sites
C. Construct bike and pedestrian bridge

Scenario II | Prioritize West District (without Connector Road)

Legend

- Infrastructure
- Site Acquisition
- Vertical Development



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A. Build **East** stormwater parks
B. Develop **East** soft sites
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Scenario II | Prioritize West District (without Connector Road)

Category	Lead	Support
Infrastructure		
Gateways	City of Creve Coeur	SLEDP
Full Access Turns at Old Olive and Lindbergh	SLEDP	City/MoDOT
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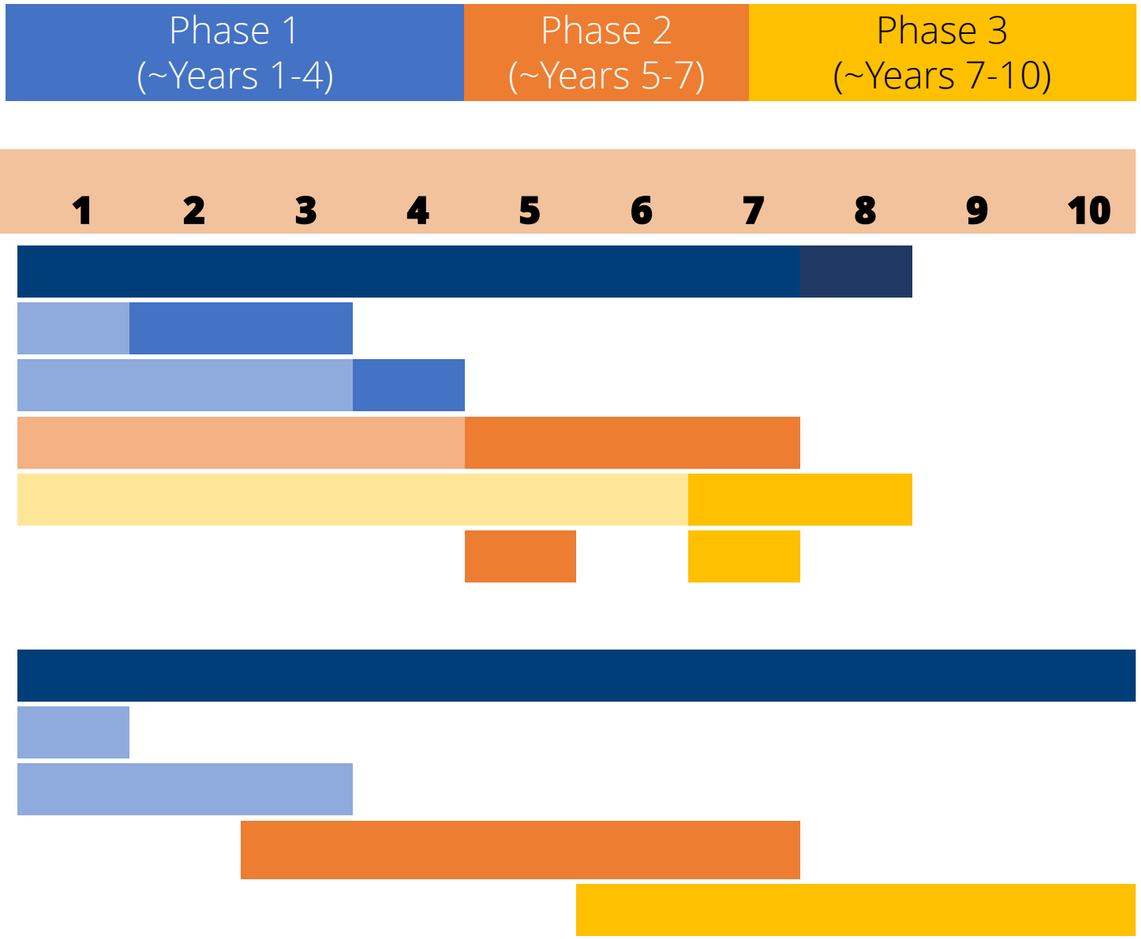


OLD OLIVE GREAT STREETS

Implementation Roadmap

December 17, 2018

STLPARTNERSHIP

CHRISTNER

HR&A Analyze. Advise. Act.

1 Great Streets Initiative Goals

2 Soft Site Analysis Overview

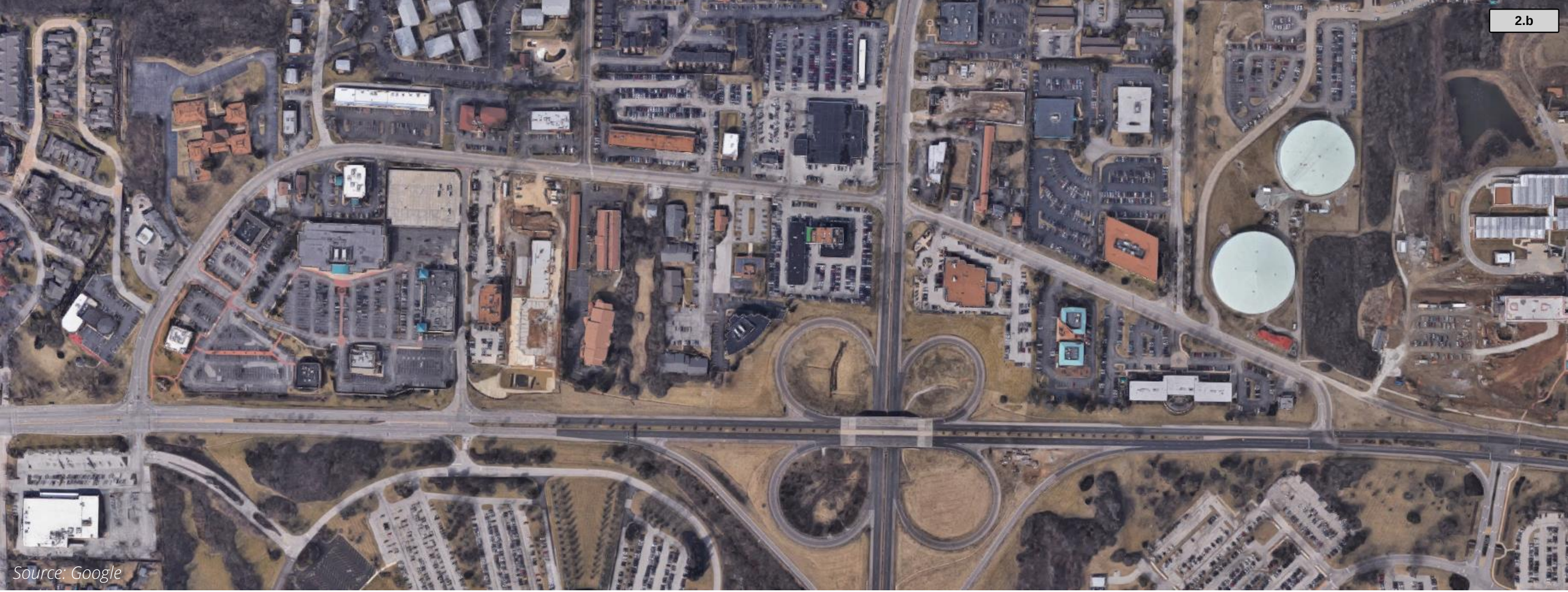
3 Infrastructure Overview

4 Implementation & Phasing Principles & Scenarios

With Connector Roads

Without Connector Roads

5 APPENDIX: PRIOR HR&A ANALYSIS (MARKET SCAN AND DEVELOPMENT POTENTIAL)



OLD OLIVE GREAT STREETS

Market Scan Update

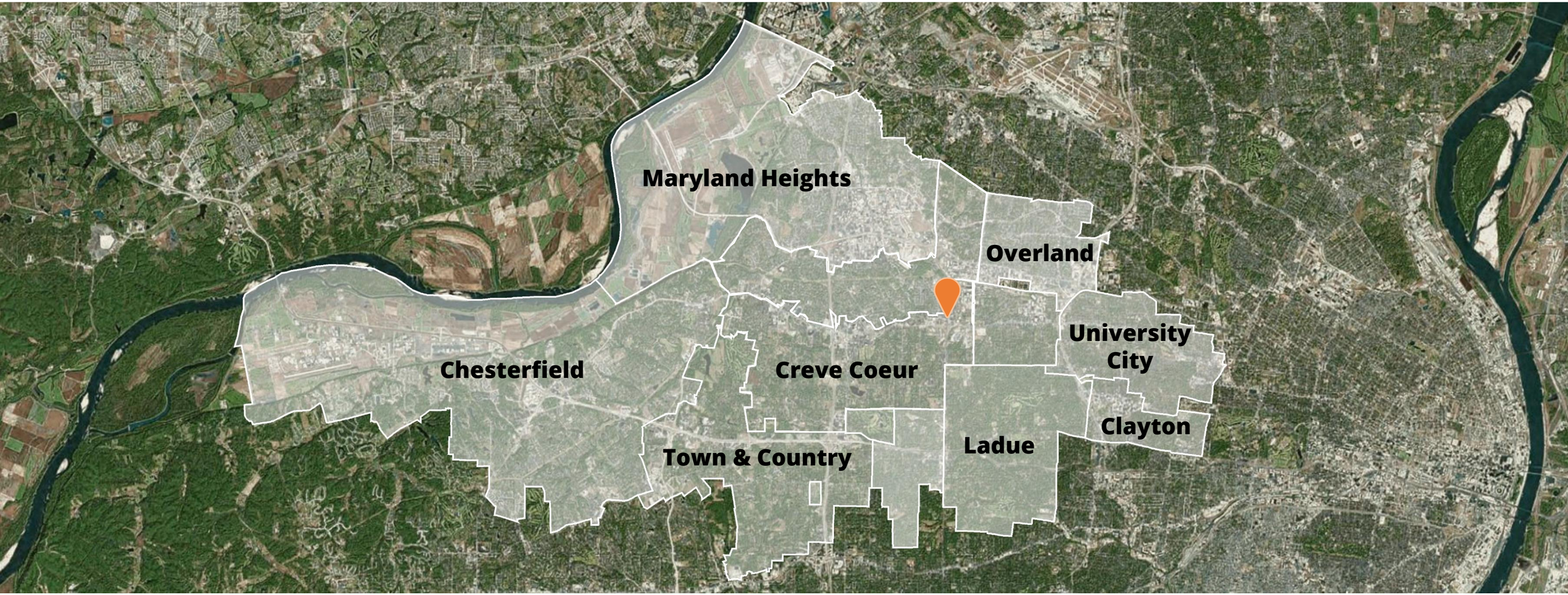
June 26, 2018

STLPARTNERSHIP

CHRISTNER

HR&A Analyze. Advise. Act.

HR&A's market scan update will inform the development potential for the study area, considering local trends within the broader Western Suburbs.



Planning Context | Released in 2017, Creve Coeur 2030 envisions Old Olive to be a critical component of the Mixed-Use Innovation Campus District.

MIX OF USES

Active ground floor uses

Outdoor dining and on-site retail amenities

PUBLIC REALM

Enhanced pedestrian environment

A consistent street-wall & building setbacks

ACCESS

Improved connectivity for active users

Relocated parking away from the street front

OPEN SPACE

Preservation of green & open space

Tree coverage requirements for surface parking lots

Source: Creve Coeur 2030

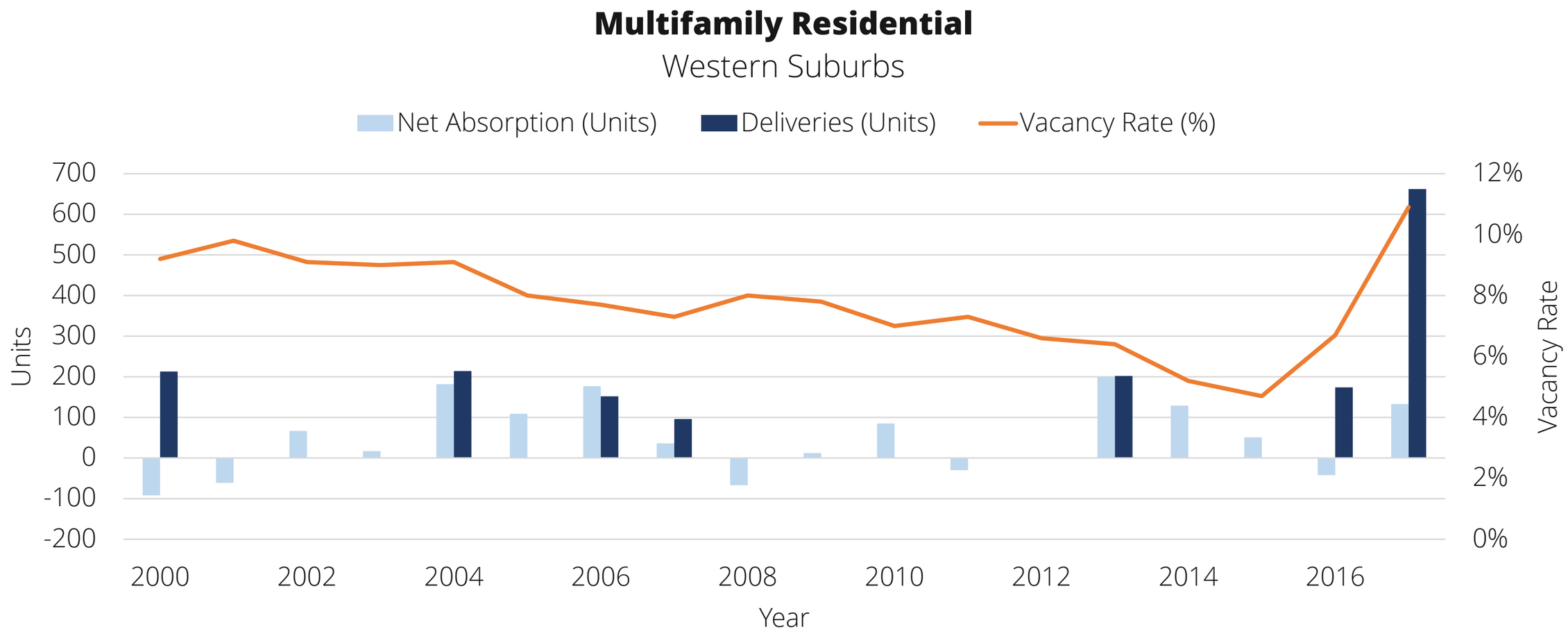
Planning Context | The Great Streets program will directly address a number of these planning and development issues – some more challenging than others.

MIX OF USES	PUBLIC REALM	ACCESS	OPEN SPACE
Active ground floor uses	Enhanced pedestrian environment	Improved connectivity for active users	Preservation of green & open space
Outdoor dining and on-site retail amenities	A consistent street-wall & building setbacks	Relocated parking away from the street front	Tree coverage requirements for surface parking lots

Source: Creve Coeur 2030

HR&A Advisors, Inc.

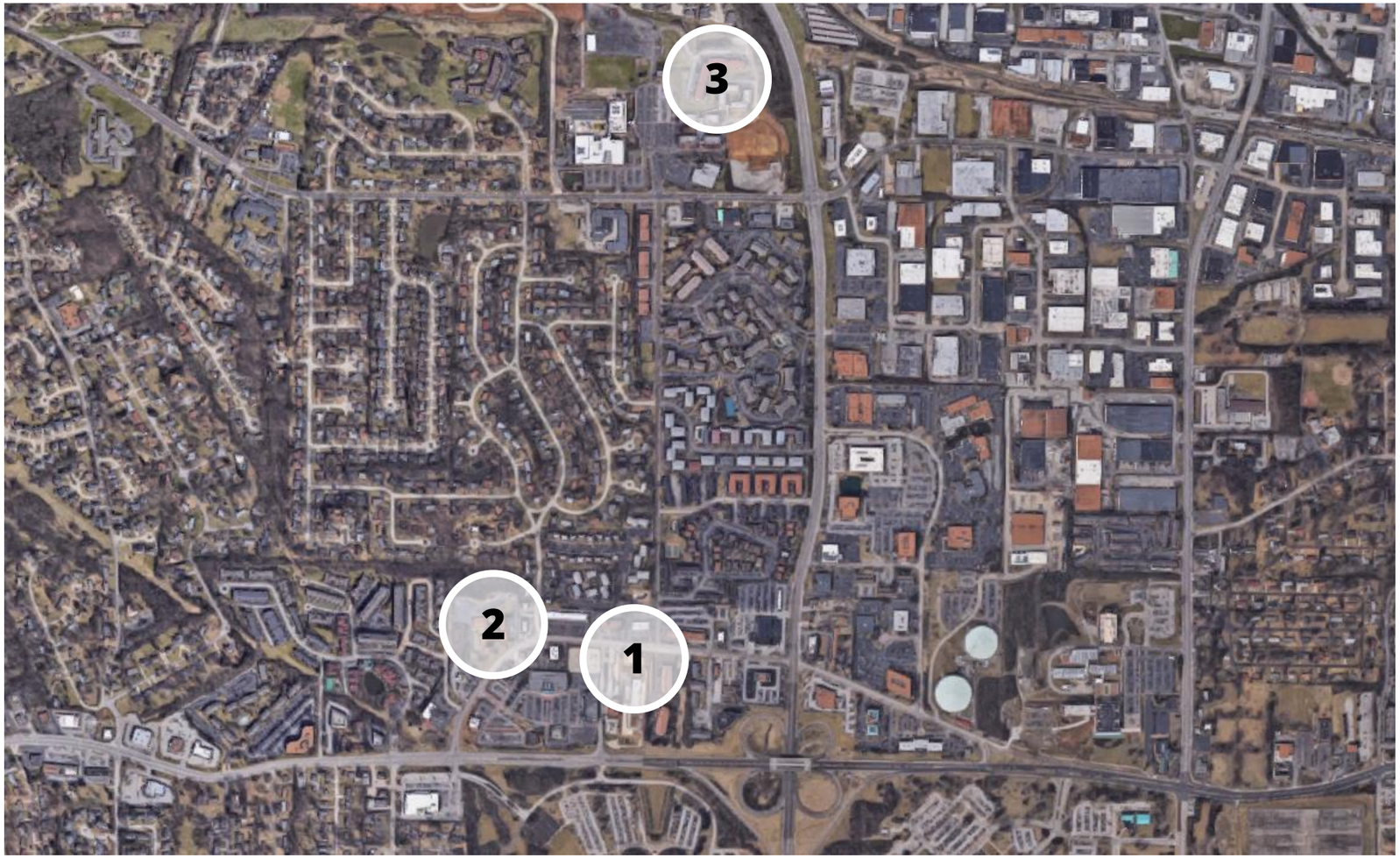
Residential | As regional vacancy steadily declined over the past 15 years, the market has responded with significant deliveries in the last two years.



Source: CoStar

HR&A Advisors, Inc.

Residential | Since 2016, there have been three new multifamily properties delivered near Old Olive.



Source: CoStar

1
Vanguard Heights
Covington Realty Partners
Year Built: 2016
Units: 174
Rent/SF: $2.01
In first 8 months, leased 55%

2
The Vue
BCC Partners
Year Built: 2017 (Phase 2, 2018)
Units: 364
Rent/SF: $1.85

3
Covenant Place
Community Housing Management Corp.
Year Built: 2016 (Phase 2, 2018)
Units: 353
Rent/SF: N/A (Age Restricted)

Residential | Recently delivered multifamily developments are leasing-up more slowly and attracting fewer families than anticipated.

ABSORPTION

Lease-up is taking longer than expected – potentially due to regional competition.

Larger units (3 bedrooms) are slowest to be absorbed.

DEMOGRAPHICS

Developers are targeting young professionals, empty nesters, young families.

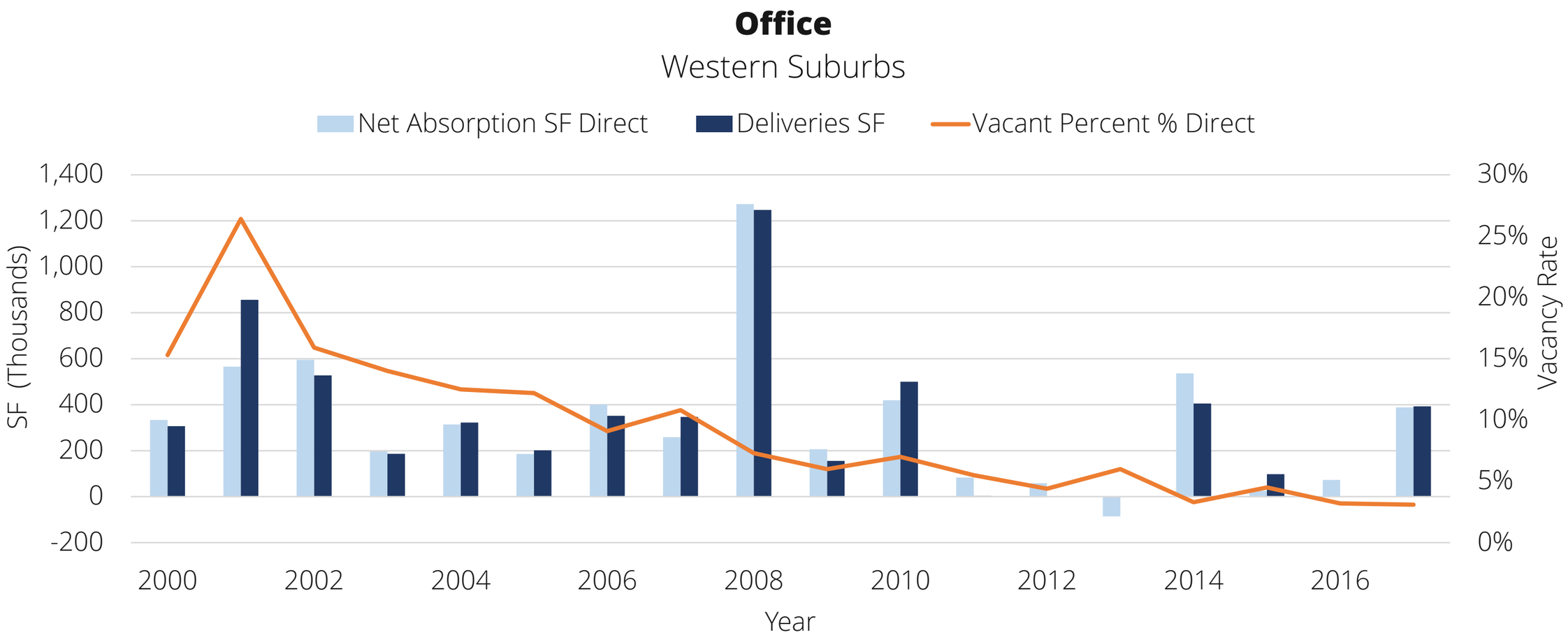
Despite good schools, new projects have received limited interest from families.

AMENITIES

Existing retail and grocery are viewed as positive amenities to residential units.

Source: CoStar

Office | In the region, annual deliveries have been quickly absorbed, causing vacancy to continuously decline and remain low.



Source: CoStar

Office | Low vacancy demonstrates a potential opportunity for additional office development.

Within 1-mile of Creve Coeur, Old Olive, and Olivette there is 8.2M SF of office, equal to 31% of the overall Western Suburbs stock.

Creve Coeur
4.2M SF Total
24K SF built since 2010
12.1% Total Vacancy

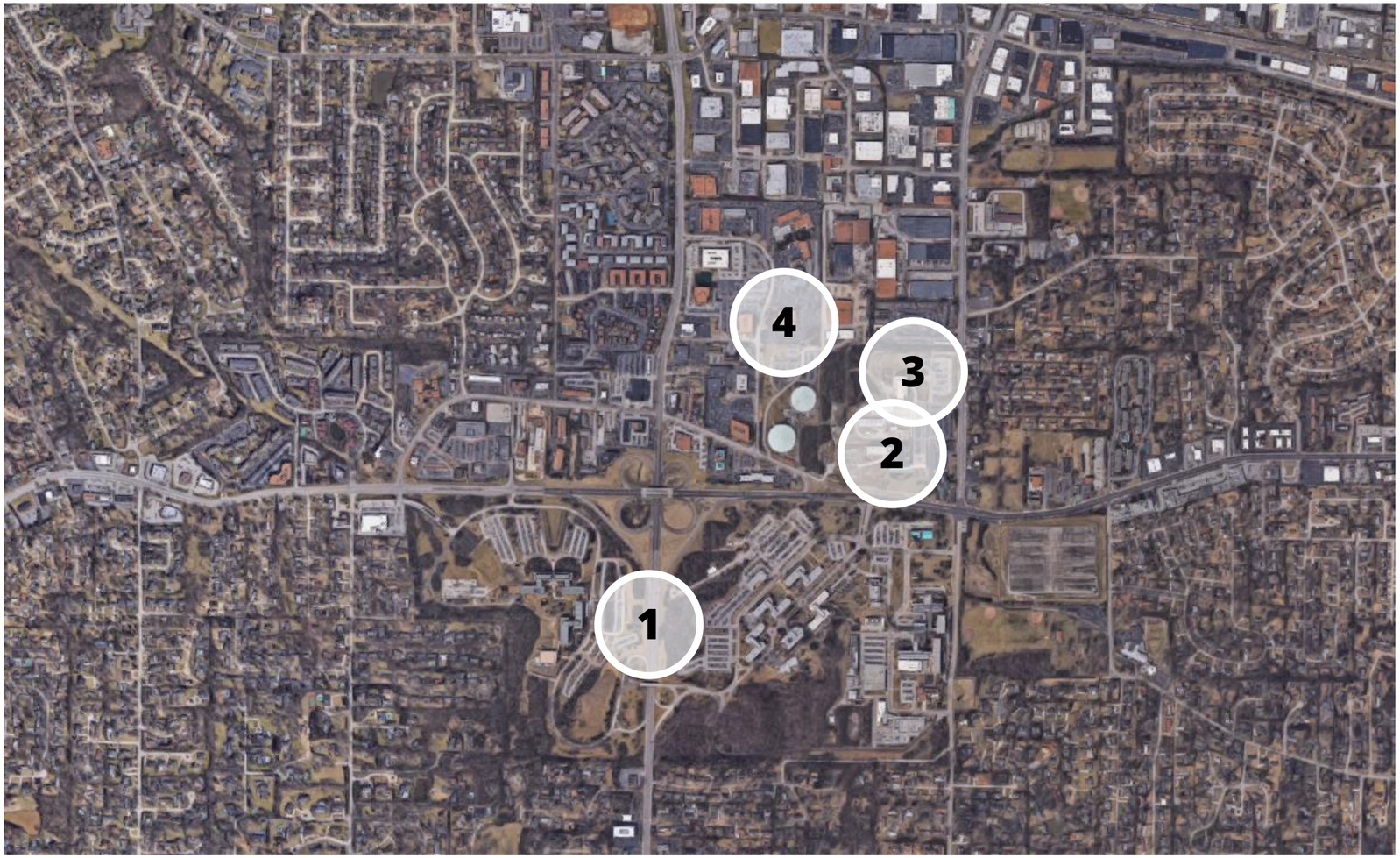
Old Olive
2.2M SF Total
110K SF built since 2010
0.5% Total Vacancy

Olivette
1.8M SF Total
140K SF built since 2010
2.6% Total Vacancy

Source: CoStar

Note: For comparison, total vacancy within 1 mile in Chesterfield is 6.1% and 4.6% in Clayton.

Office | At least 40% of the 2.2-million square of office space located within 1-mile of Old Olive is dedicated to plant science uses, concentrated within four properties.



1
Monsanto Headquarters
Owner: Monsanto Company
Rentable Area: 685,000 SF
Vacancy: 0%

2
Donald Danforth Plant Science Center
Owner: D. Danforth Plant Science Center
Rentable Area: 45,000 SF
Vacancy: 0%

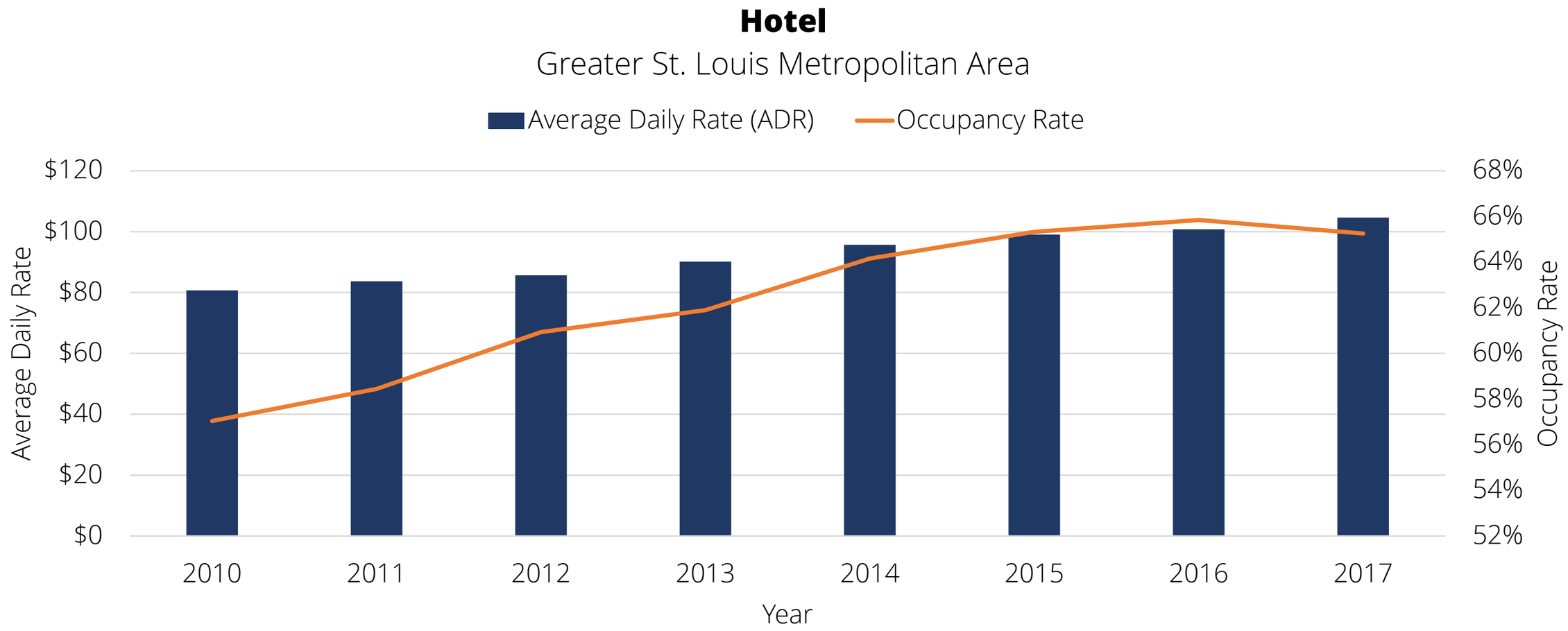
3
BRDG Growth Park
Owner: Wexford Equities, LLC
Rentable Area: 110,000 SF
Vacancy: 0%

4
Helix Center Biotech Incubator
Owner: SLEDP
Rentable Area: 45,000 SF
Vacancy: 0%

Office | Within 1-mile of Old Olive, most office space is class B, yet the majority of current vacancies are in class A properties.

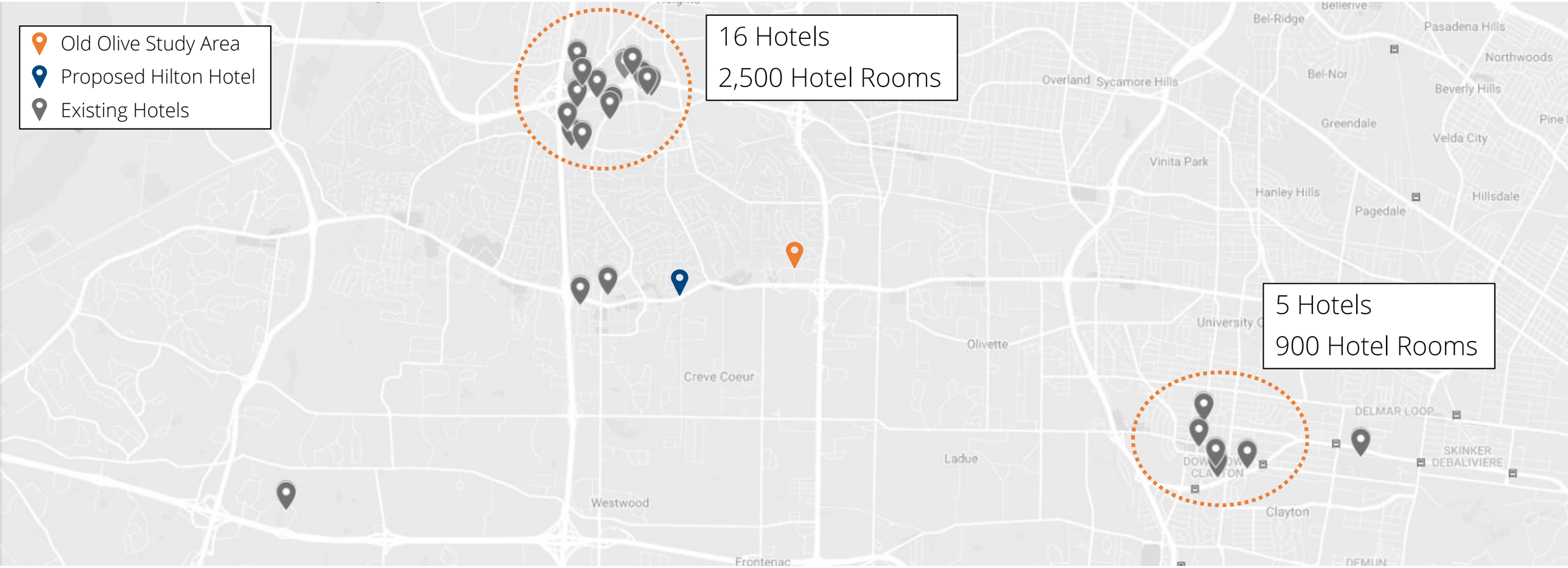
Class	Buildings	%	Total SF	%	Vacant SF	%
A	3	4%	175,000	8%	11,000	83%
B	29	37%	1,690,000	77%	1,500	13%
C	47	59%	340,000	15%	500	4%
Total	79		2,205,000		13,000	

Hotel | In the metro area, hotel occupancy has remained stable despite a steady increase in average daily rate.



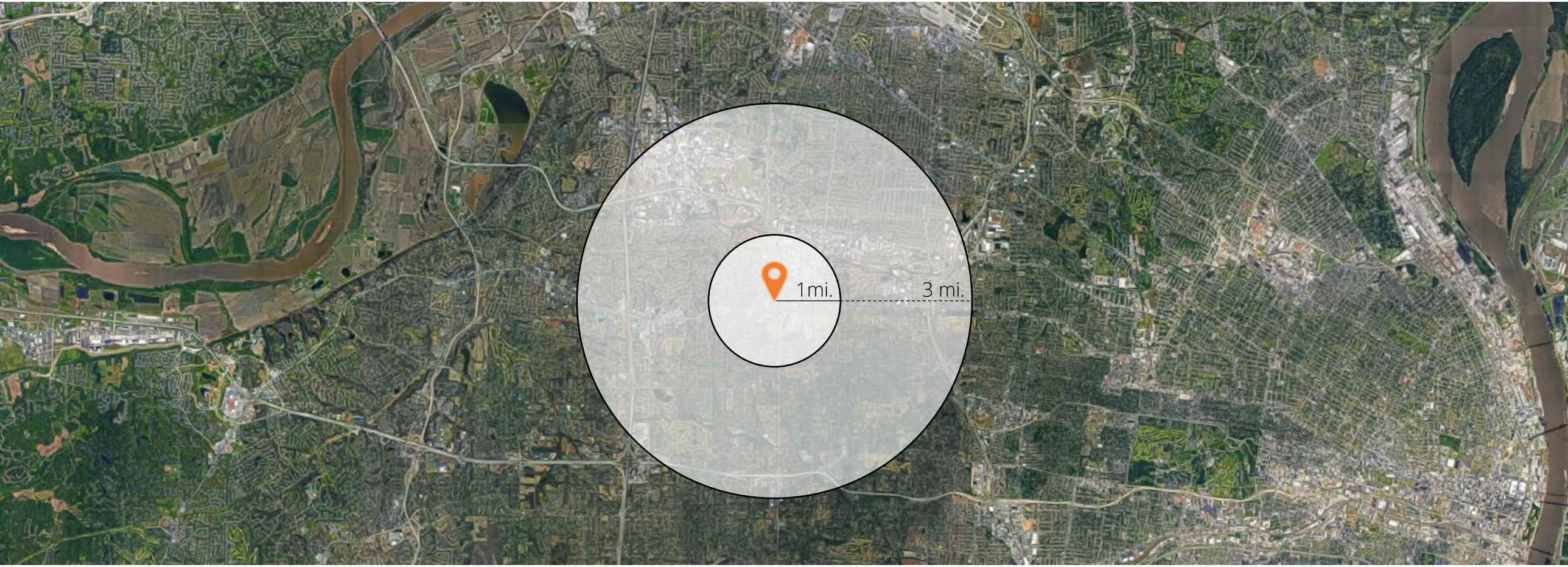
Note: In April 2018, Creve Coeur City Council voted against rezoning a 10-acre site for a 260-key Hilton Hotel.

Hotel | In nearby communities, there are 24 hotels offering approximately 4,000 rooms, 90% of which were built before 2002.



Source: STR

Retail | Old Olive can support two distinct types of retail: destination and neighborhood, which draw customers from varying distances.



Note: Assumes a capture rate of 20%.

Retail | When considering a broad, **three mile** catchment area – there is a sizeable demand for general merchandise (department stores and big box stores).

Retail Category	Total Demand	Total Existing Sales	Unmet Spending Potential	Capturable Spending Potential	Capturable Square Feet
Retail	$1,060 M	$805 M	$260 M	$50 M	280K SF
General Merch.	$395 M	$65 M	$330 M	$65 M	220K SF
Restaurant	$275 M	$160 M	$115 M	$25 M	40K SF
Grocery	$305 M	$410 M	$0 M	$0 M	0 SF
Total	$1.6 B	$1.4 B	$375 M	$75 M	320K SF

Note: Assumes a capture rate of 20%.

HR&A Advisors, Inc.

Retail | Neighborhood-oriented retail along Old Olive can be positioned to serve a diverse set of user groups at many different times of day.

FAMILIES & SENIORS

- Current uses do not serve families and empty nesters well.
- Convenience uses and neighborhood services, such as a bank, laundromat, and family friendly restaurants would allow patrons to run errands and spend time along Old Olive.

DAYTIME WORKERS

- While there are many fast casual lunch options along Old Olive, the majority are located on the western half of the street.
- To serve the large and growing worker base anchored by the Danforth Center, it may be prudent to encourage new food & beverage uses along the eastern edge to pull patrons into the district.

HAPPY HOUR

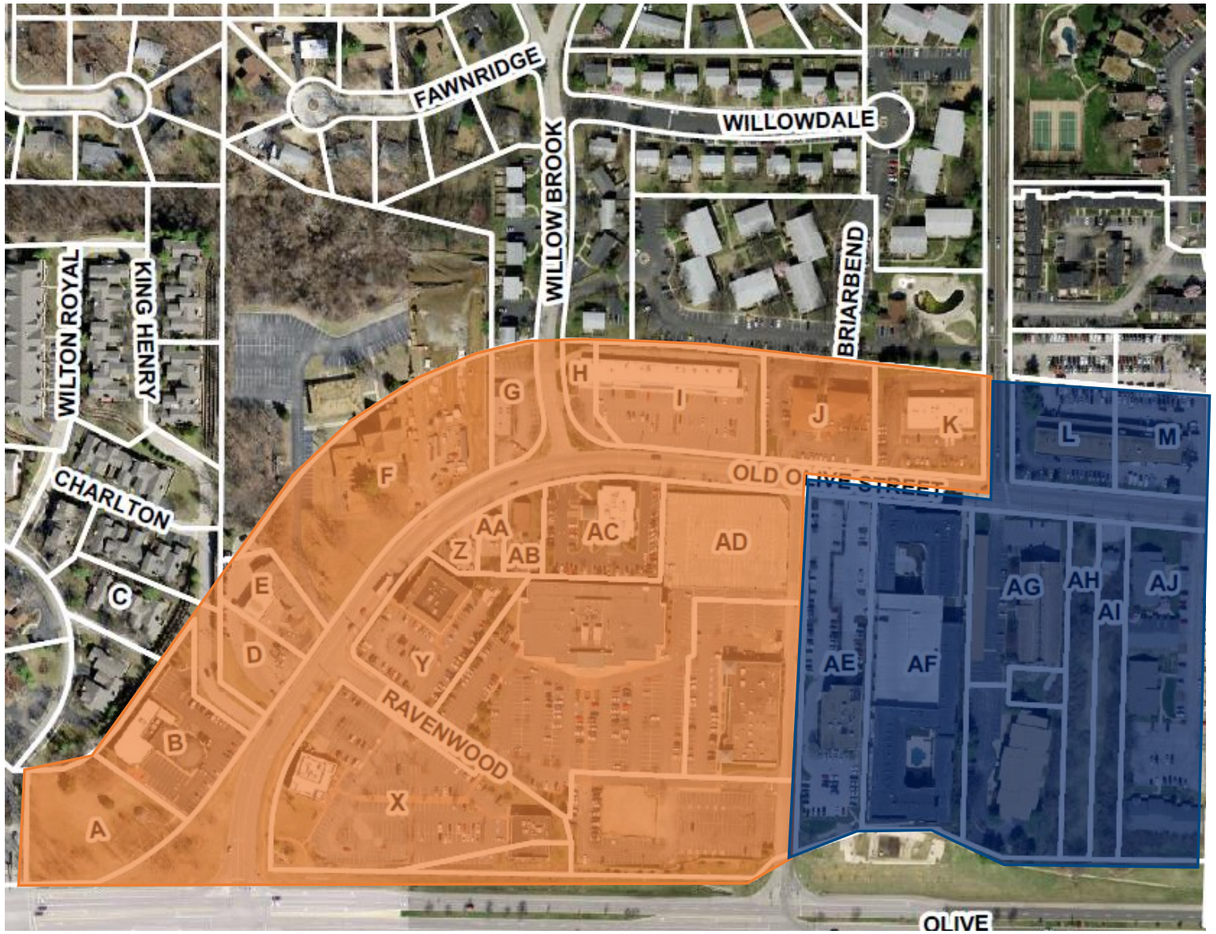
- Current food & beverage uses are geared toward the daytime population.
- To capture evening spending, uses including a wine bar, sports bar, and restaurants with patio seating would enliven the street and provide a place for people to linger.

Retail | Residents and workers within **one mile** of Old Olive Street can support additional new retail and a small amount of food and beverage uses.

Retail Category	Total Demand	Total Existing Sales	Unmet Spending Potential	Capturable Spending Potential	Capturable Square Feet
Retail	$160 M	$100 M	$60 M	$10 M	55K SF
Clothing	$20 M	$10 M	$10M	$2 M	5K SF
Home/Garden	$15 M	$5 M	$10M	$2 M	5K SF
Misc. Retailers	$20 M	$10M	$10M	$2 M	10K SF
General Merch.	$60 M	$5 M	$55 M	$10 M	35K SF
Restaurant	$40 M	$15 M	$30 M	$5 M	10K SF
Grocery	$45 M	$50 M	$0 M	$0 M	0 SF
Total	$245 M	$165 M	$90 M	$15 M	65K SF

Note: Assumes a capture rate of 20%.

Site Analysis | Anchored by name tenants, the western end of Old Olive is well positioned for continued growth.



As the most significantly retailed area along Old Olive, the western portion is the strongest performing and most vibrant segment of the study area. New multifamily to the northwest and southeast sides of the area will help grow the customer base.

- AMC Classic
- St. Louis Bread Co.
- California Pizza Kitchen
- Stir Crazy Fresh Asian Grill
- Panda Express

Multifamily development and a series of skinny lots will make street-front activation challenging in this area.

- Olive Street Pharmacy
- Greenways Academy
- Star International

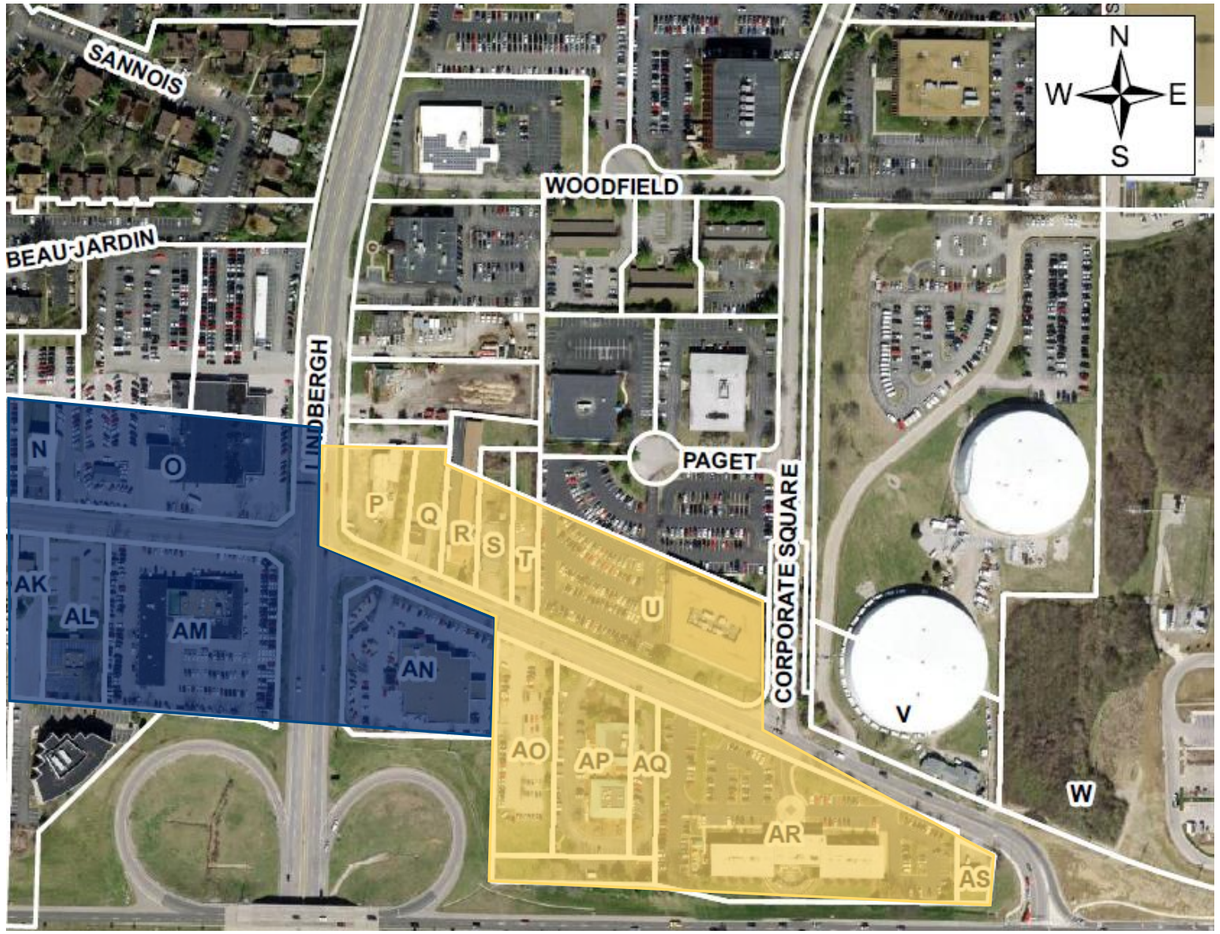
Site Analysis | Recent renovations and concentrated ownership may be barriers to redevelopment at the North Lindbergh intersection.

Recent renovations of the auto-centric uses that dominate the corner of North Lindbergh and Old Olive Street will make redevelopment unlikely.

- Lou Fusz Mazda dealership
- Lou Fusz Subaru dealership
- Lou Fusz Kia dealership
- Collision Center

Small and large sites, street-facing surface parking, and non-activating uses do not foster the encouraging retail environment needed to anchor connections with the Danforth Center and innovation district.

- Ivy Motel
- Strawberry Stitch
- AccuCare Home Healthcare
- Larson Financial Group
- Builders Association of Greater St. Louis



Key Findings

1 Residential

- Significant recent multifamily development in St. Louis may be causing lease-up to take longer than expected
- While families are slower to be attracted to new multifamily offerings, strong potential is seen for single adults, empty nesters, and new/transitory district employees.

2 Office

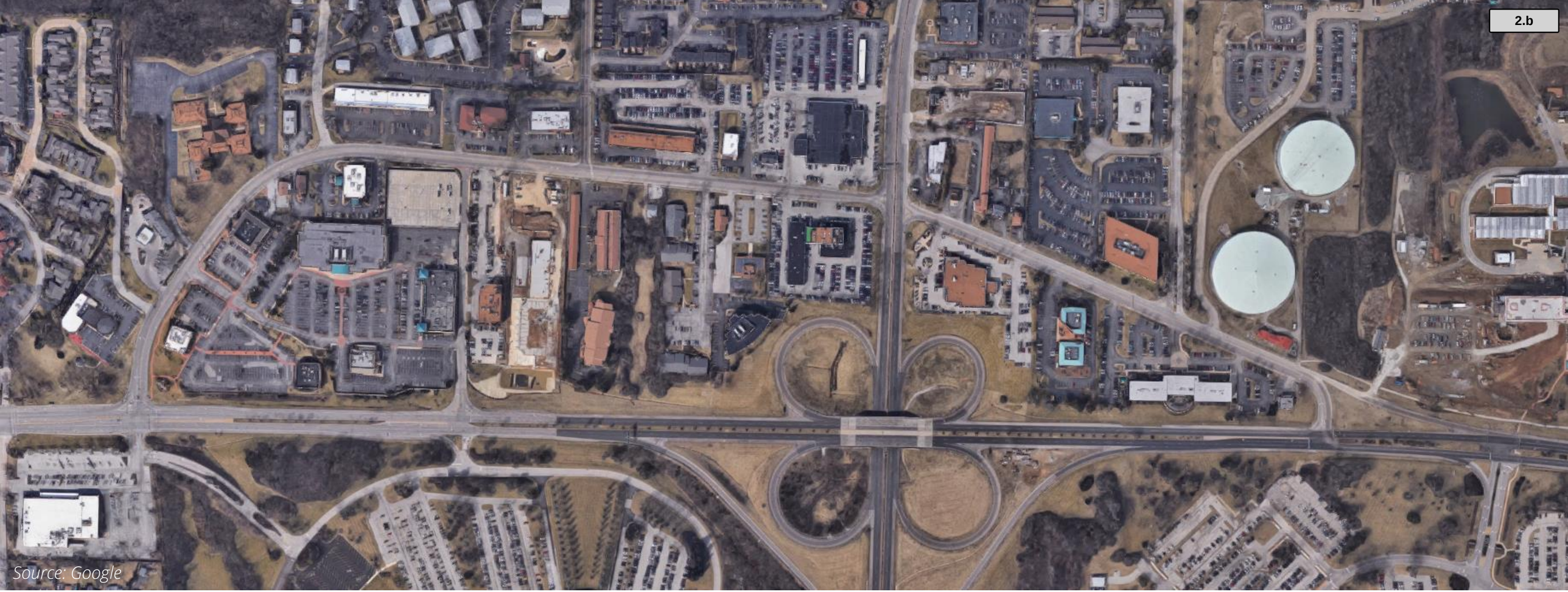
- Strong market and limited ground up development sites
- Economics of new development can still be challenging on occupied acquisition sites

3 Hotel

- St. Louis' hotel market is overall stable, but new products will have to compete with existing nodes of nearby hotels.

4 Retail

- Retail needs to serve a diverse set of user groups and during all times of day
- There is an opportunity for Old Olive to fill an existing need for additional food & beverage uses



OLD OLIVE GREAT STREETS

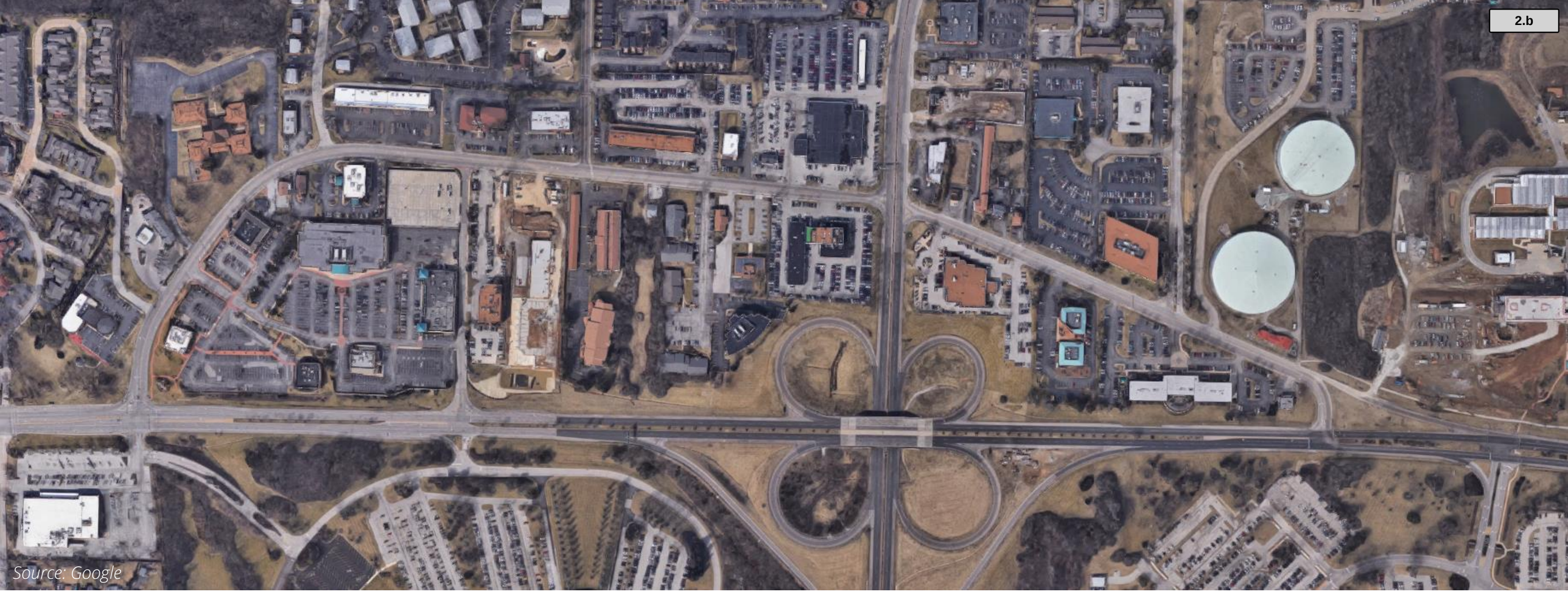
Market Scan Update

June 26, 2018

STLPARTNERSHIP

CHRISTNER

HR&A Analyze. Advise. Act.



OLD OLIVE GREAT STREETS

Development Potential Analysis Update

September 2018

STLPARTNERSHIP

CHRISTNER

HR&A Analyze. Advise. Act.

	1	2	3	4	5	6	7/8	9	10
Impact	🟡	🟢	🟢	🟡	🟡	🟢	🟢	🟢	🟢
Acquisition Feasibility	🟡	🟡	🟢	🔴	🟢	🟡	🟢	🟡	🟡
Funding Gap (Per Future Built SF)	🔴	🟡	🟡	🔴	🔴	🔴	🟢	🟢	🟢
Est. Acquisition Cost	$0.7M	$0.6M	$2.8M	$3.8M	$3.0M	$3.7M	$4.2M	$0.4M	$0.1M
Total Vertical Dev. Cost	$5.5M	$11.0M	$32.9M	$32.9M	$21.9M	$28.5M	$75.5M	$7.6M	$2.2M
Estimated Future Value	$5.3M	$10.7M	$32.0M	$32.0M	$21.4M	$27.8M	$73.5M	$7.3M	$2.1M
Funding Gap	$0.8M	$0.9M	$3.7M	$4.7M	$3.7M	$4.4M	$6.2M	$0.6M	$0.2M
Funding Gap (Per Future Built SF)	$35	$19	$26	$33	$39	$36	$19	$19	$19

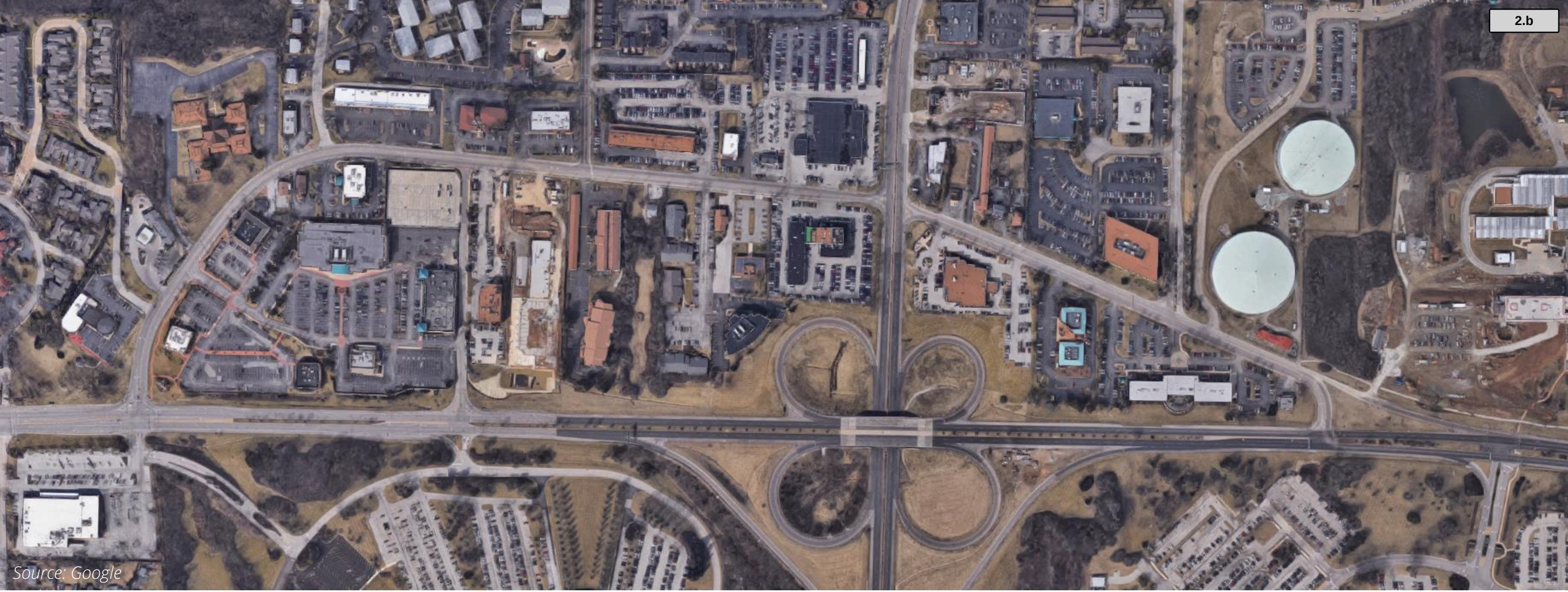
Development Potential Analysis | Key Considerations

1. The funding gap is a function of acquisition costs and program

- Acquisition costs
  - For green field development, acquisition costs assumed to be ~$15/sf of land (vacant), based on market comps
  - For redevelopment of in-use sites, acquisition costs are based on estimated capitalized value of existing uses, totaling up to ~$35/sf of land
- Development program
  - Residential development has greatest market feasibility, and generates positive value at site acquisition costs for vacant land
  - Mixed-use development requires subsidy

2. Where subsidy is required, need grows with project size

- Large sites (e.g. sites 7 & 8) developed for residential generate the greatest potential value
  - The same sites developed for mixed-use require significant subsidy
- Prioritization should factor in scale of impact associated with development, not only total subsidy needs



OLD OLIVE GREAT STREETS

Development Potential Analysis Update

September 2018

STLPARTNERSHIP

CHRISTNER

HR&A Analyze. Advise. Act.

TECHNICAL

Civil Engineering

The civil engineering scope for the project involved the preparation of 30% drawings using MoDOT standards. It is anticipated that local and Federal transportation funds will be requested for the phases of the project. The civil engineering documents provided are considered preliminary. However, detailed investigation was performed to provide the recommendations:

- Utility meetings and confirmation with Missouri American Water, Ameren and Spectrum
- Right of way research
- Section studies
- Plans and profiles
- Drainage plans
- Cost estimate

Implementation Due Diligence

Existing Roadway Condition
The City of Creve Coeur will consider taking over ownership and maintenance of Old Olive when the interchange project is complete. The existing pavement appears to be asphalt in good condition with over 14" thickness. The pavement section could vary considerably throughout the alignment due to the history of the road's evolution from the Central Plank Road to its current use as slip ramps between Olive and Lindbergh.

Stormwater BMPs
Stormwater Best Management Practices (BMP's) have been considered throughout the design development phase. Water quantity management will not be a requirement because impervious areas will be significantly reduced with the addition of green space throughout the majority of the alignment, therefore runoff will inherently be reduced. Water quality management will be incorporated into two (2) potential basin areas on the east and west sides of the alignment where Old Olive intersects Olive. In addition, amended soils could be incorporated into the green spaces throughout the alignment. These elements will be fully defined in the construction document development phase.

Water Utility
Potential conflicts and resolution of conflicts with potable water lines should continue to be a primary parameter as construction documents are developed. Missouri American Water indicated that hydro excavation techniques should be specified for excavation near their facilities. In addition, 2' minimum clearance should be provided between outside of their pipe and outside of lighting upright foundations.

Five (5) large diameter potable water lines ranging between 12" and 36" in diameter parallel the centerline of Old Olive within the R/W. Two (2) of the mains appear to split off onto Lindbergh with the remaining three (3) continuing to the west along Old Olive. These water service lines were constructed between 1908 and 1930, therefore record plans are not available. Missouri American indicated that they will provide GIS coordinate data for the locations where their facilities were found.

Storm Sewer
The City of Creve Coeur may want to consider performing CC-TV on existing storm sewers in the final design phase to determine if any point repairs should be included when the road is reconstructed.

Attachments

- Cover Sheet
- Typical Sections
- Preliminary Plan and Profile
- Preliminary Utility and Drainage Plans
- Preliminary Flow Calculation

OLD OLIVE IMPROVEMENTS

CREVE COEUR, MISSOURI

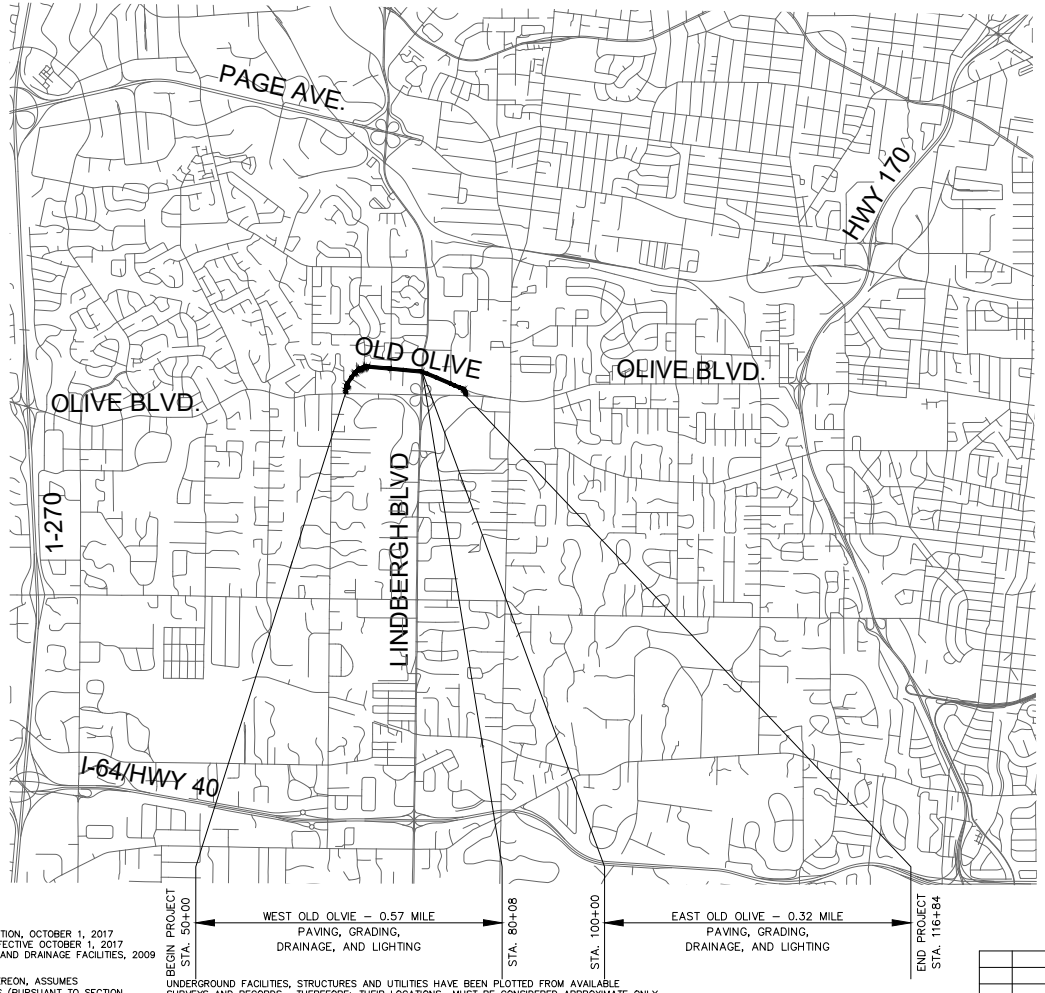
FEDERAL PROJECT

DESIGN DESIGNATIONS

ADT – 2018 = XXXX
ADT – 2028 = XXXX
DESIGN SPEED (CURRENT) = 30 MPH
DESIGN SPEED (PROPOSED) = XX MPH
FUNCTIONAL CLASSIFICATION = MAJOR COLLECTOR

LEGEND

SYMBOL	DESCRIPTION
PP	POWER POLE
	GUY WIRE
	SIGN
GV	GAS VALVE
GM	GAS METER
WV	WATER VALVE
WM	WATER METER
WF/WS	WATER FAUCET OR SPRINKLER
CO	CLEAN OUT
YD	YARD DRAIN
	POST
E/EM	ELECTRIC BOX OR METER
ICV	IRRIGATION CONTROL VALVE
MB	MAIL BOX
	TELEPHONE/FIBER BOX
LS	LIGHT STANDARD
FH	FIRE HYDRANT
TS	TRAFFIC SIGNAL
EYL	ELECTRIC YARD LIGHT
E	PHONE/FIBER MANHOLE
E	ELECTRIC MANHOLE
	BENCHMARK
	SURVEY CONTROL POINT
	FOUND CUT CROSS
	FOUND MONUMENT AS NOTED
	AREA/GRATE INLET
	CURB/DROP INLET
	MANHOLE
(S)	SURVEY/CALCULATED
(R)	RECORD
OU	OVERHEAD UTILITY LINE
G G	UNDERGROUND GAS LINE
T T	UNDERGROUND TELEPHONE LINE
E E	UNDERGROUND ELECTRIC LINE
FO FO	UNDERGROUND FIBER OPTIC LINE
	SANITARY SEWER
	STORM SEWER
	TREE LINE
X X	FENCE LINE
10"	TREE W/ SIZE
48"	BUSH W/ SIZE



INDEX

SHEET #	DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTIONS
3–11	DEMO PLAN
12–16	PLAN & PROFILE SHEETS
17–25	UTILITY PLAN

ABBREVIATIONS

ATG	ADJUST TO GRADE
BO	BY OTHERS
CO	CLEAN OUT
CONC	CONCRETE
CI	CURB INLET
DB	DEED BOOK
DND	DO NOT DISTURB
E	EAST
EL	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX	EXISTING
FC	FACE OF CURB
FES	FLARED END SECTION
FH	FIRE HYDRANT
FL	FLOW LINE
GI	GRATE INLET
GV	GAS VALVE
LF	LINEAL FEET
LS	LIGHT STANDARD
MH	MANHOLE
N	NORTH
NTS	NOT TO SCALE
OFF	OFFSET
OH	OVERHEAD UTILITY
PB	PLAT BOOK
PG	PAGE
PP	POWER POLE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
S	SOUTH
SMH	SANITARY MANHOLE
TBA	TO BE ABANDONED
TBR	TO BE REMOVED
TBR&R	TO BE REMOVED AND REPLACED
TBR&REL	TO BE REMOVED AND RELOCATED
TC	TOP OF CURB
TYP	TYPICAL
VCP	VITRIFIED CLAY PIPE
W	WEST
WV	WATER VALVE
WSO	WATER SHUT OFF

THE FOLLOWING SPECIFICATIONS AND STANDARDS SHALL GOVERN:

2017 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, OCTOBER 1, 2017
2017 MISSOURI STANDARD PLANS FOR HIGHWAY CONSTRUCTION, EFFECTIVE OCTOBER 1, 2017
ST. LOUIS SEWER DISTRICT, STANDARD SPECIFICATIONS FOR SEWER AND DRAINAGE FACILITIES, 2009

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DRAWN BY: EJR
CHECKED BY: MLB
DATE: JAN 2019

39NORTH - ANALYZE AND REDESIGN
OLD OLIVE STREET ROAD
CREVE COEUR, MISSOURI

DRAWING TITLE

SHEET NUMBER
OF

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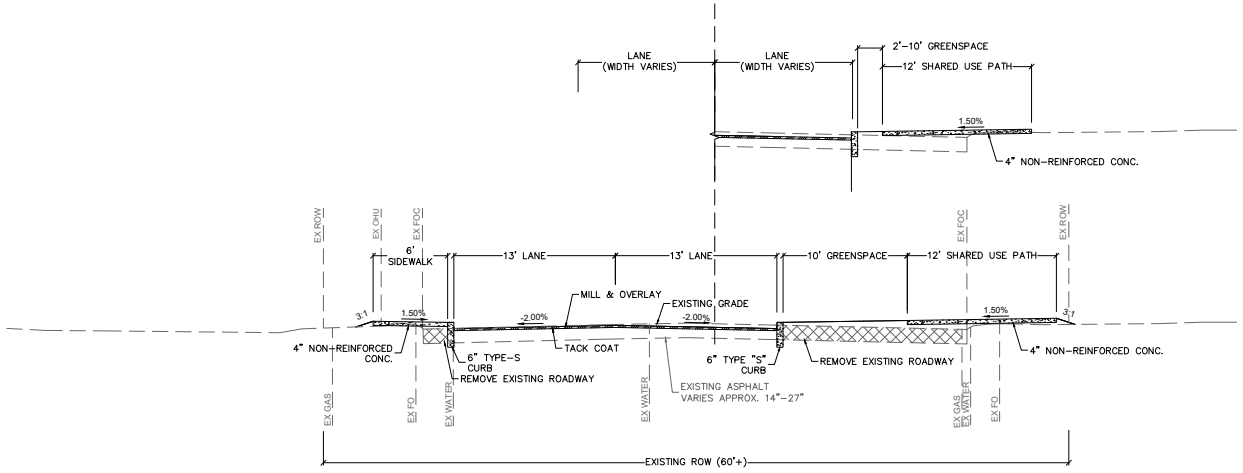
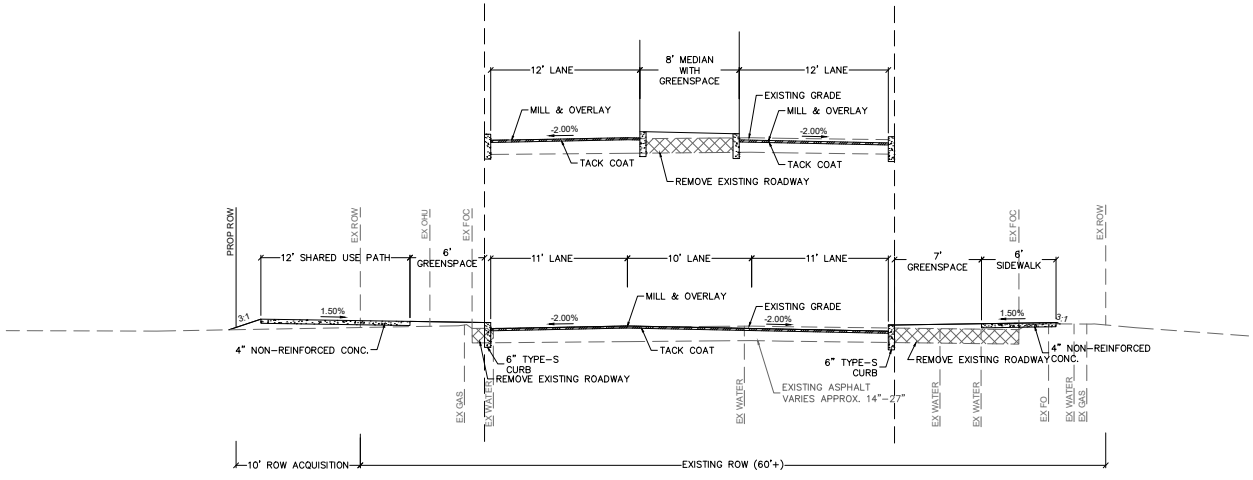


1 WEST OLD OLIVE
STATION 50+00 TO 80+08



2 EAST OLD OLIVE
STATION 100+00 TO 116+84

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39NORTH - ANALYZE AND REDESIGN
OLD OLIVE STREET ROAD
CREVE COEUR, MISSOURI
TYPICAL SECTIONS

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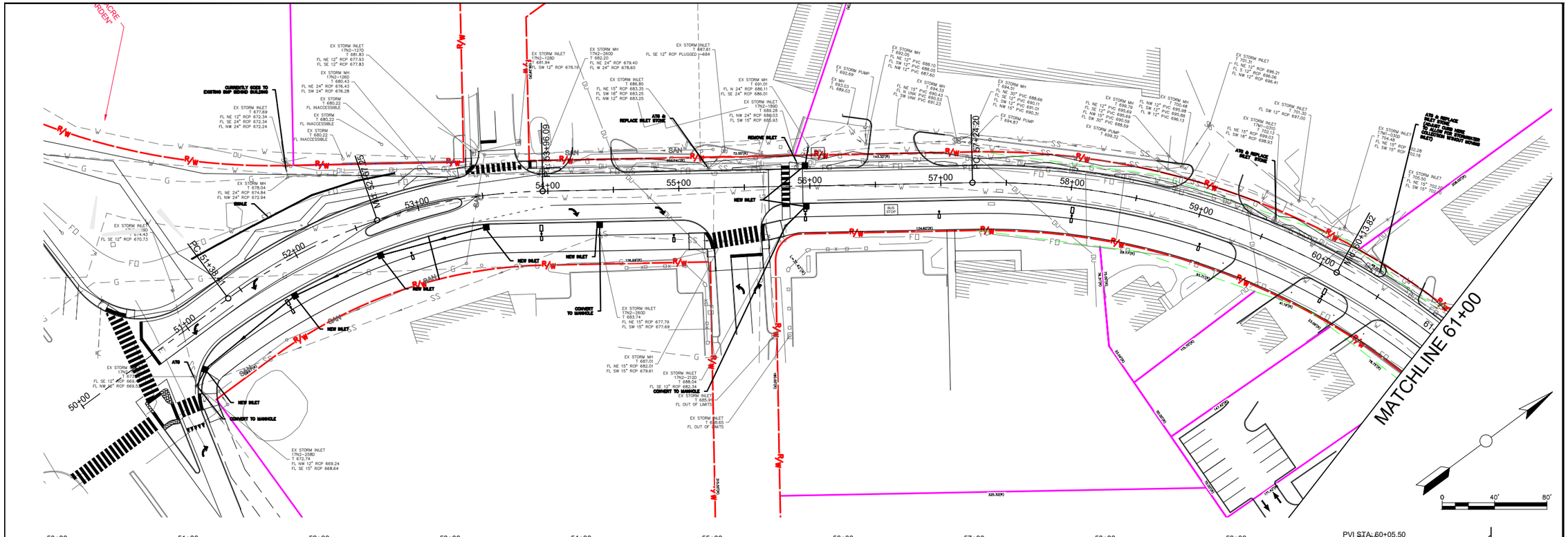

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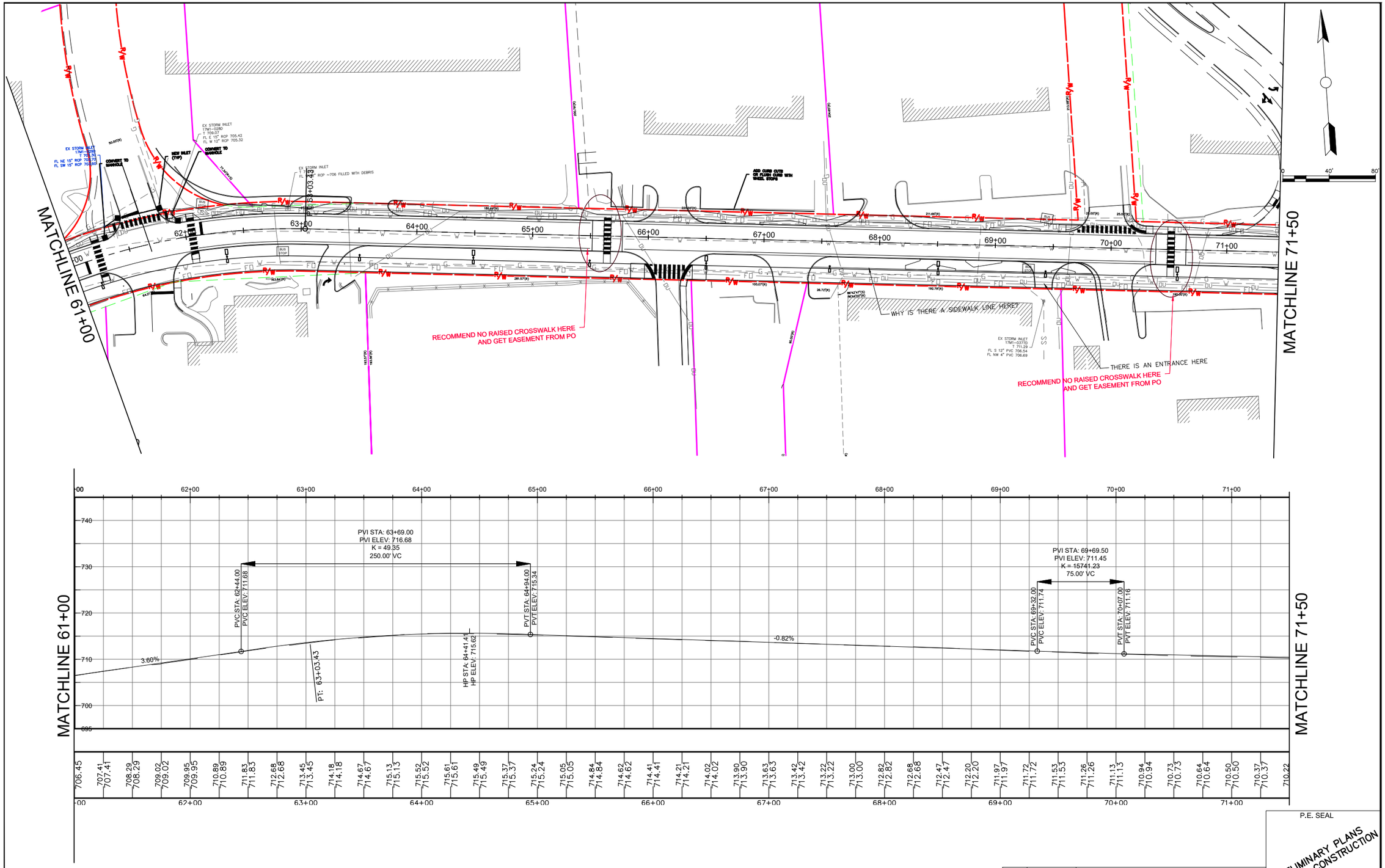

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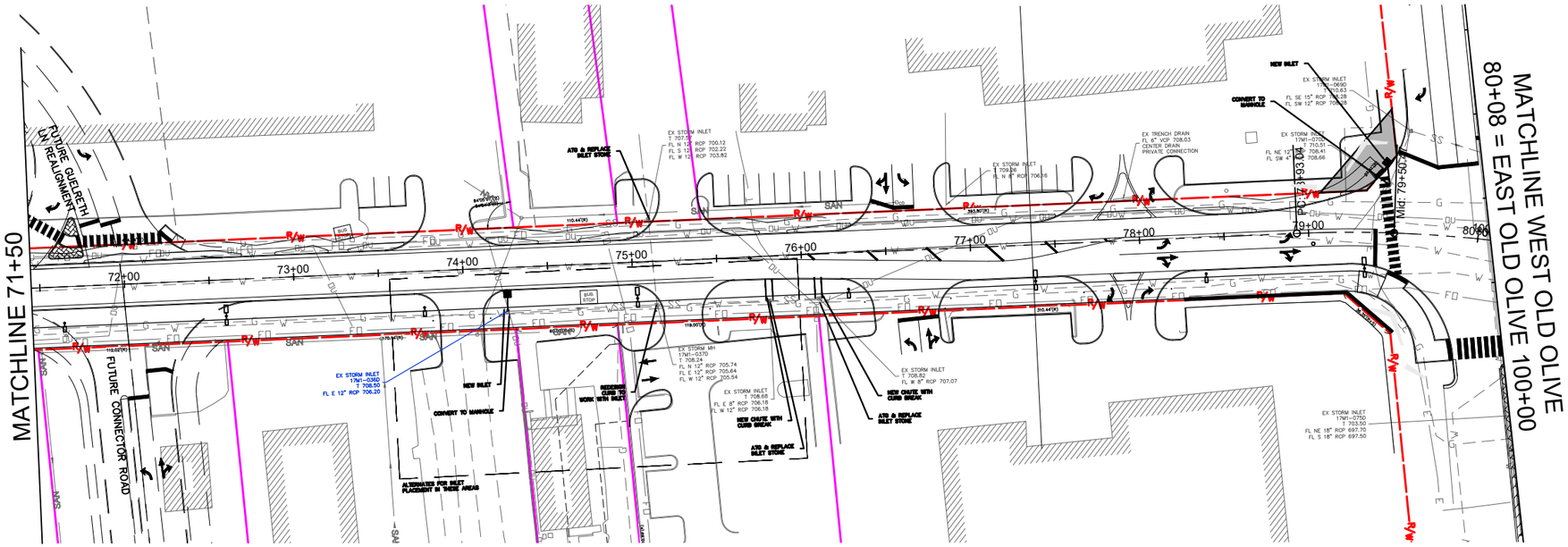

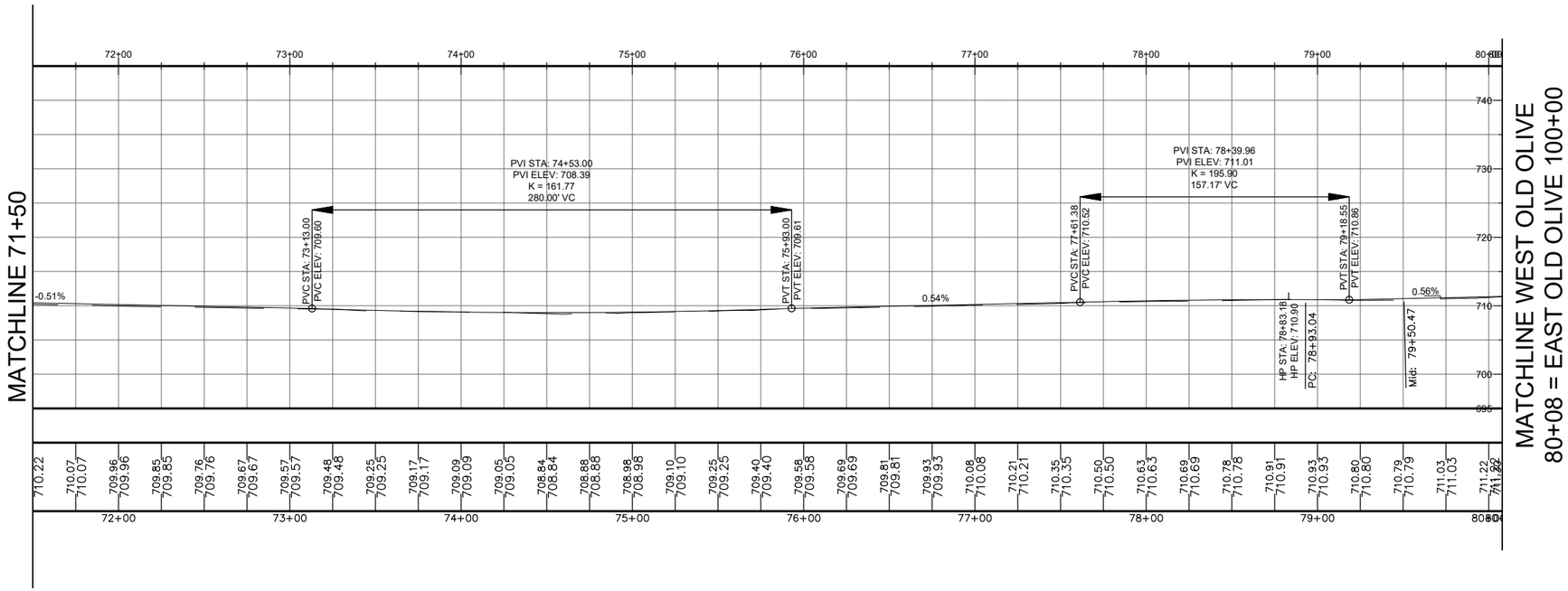

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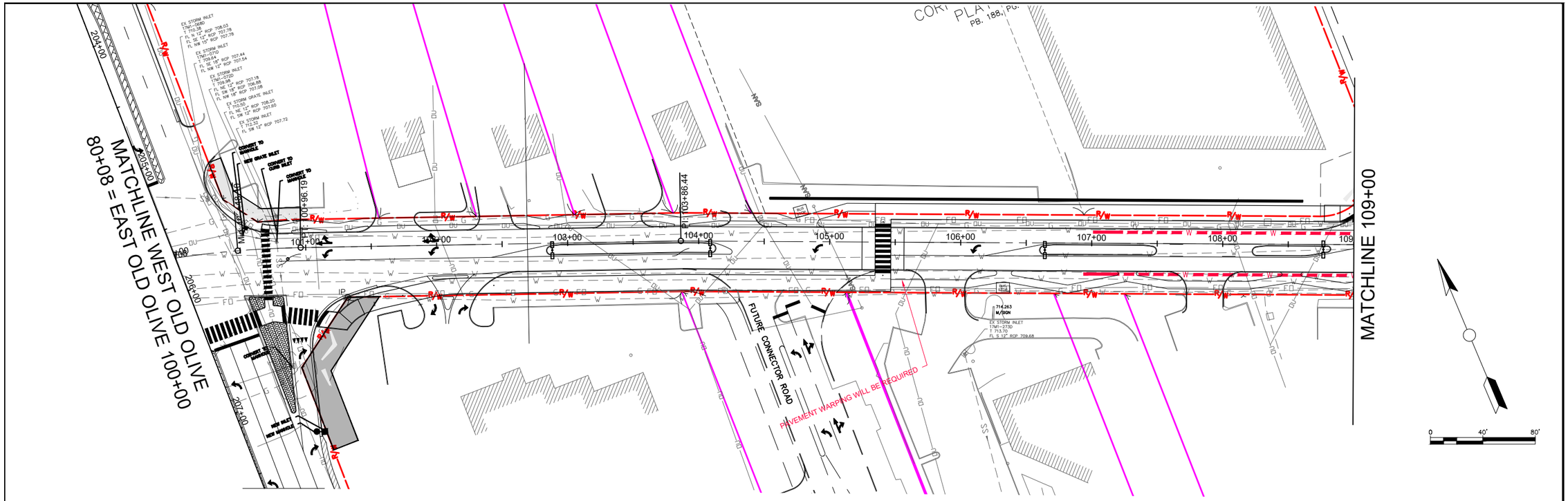

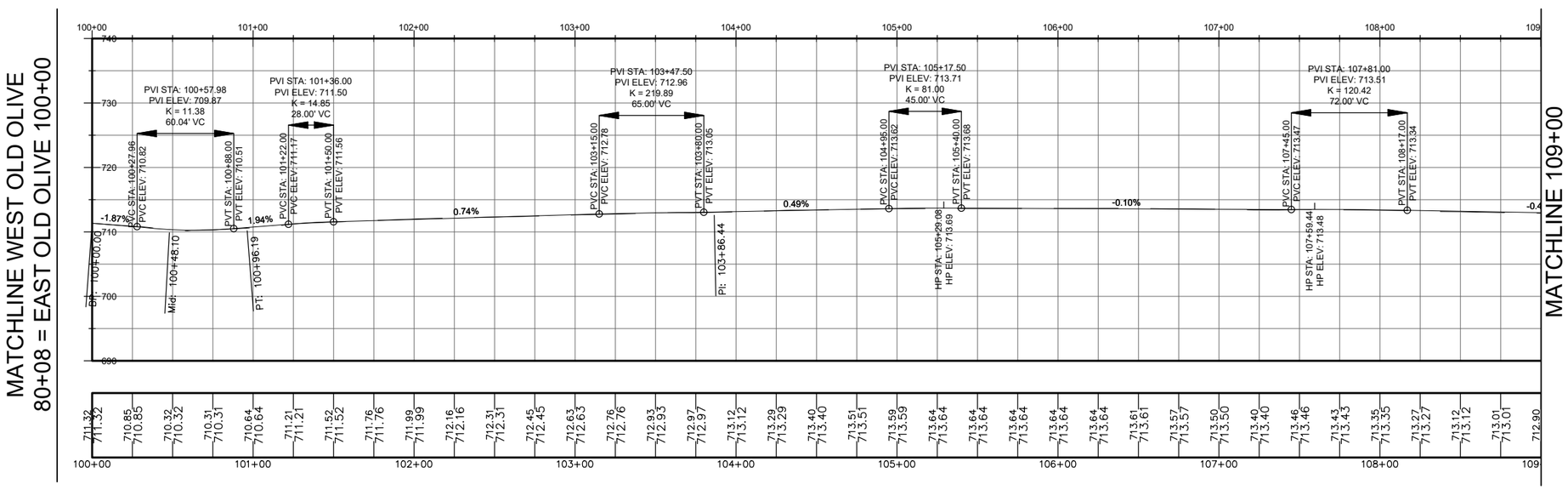

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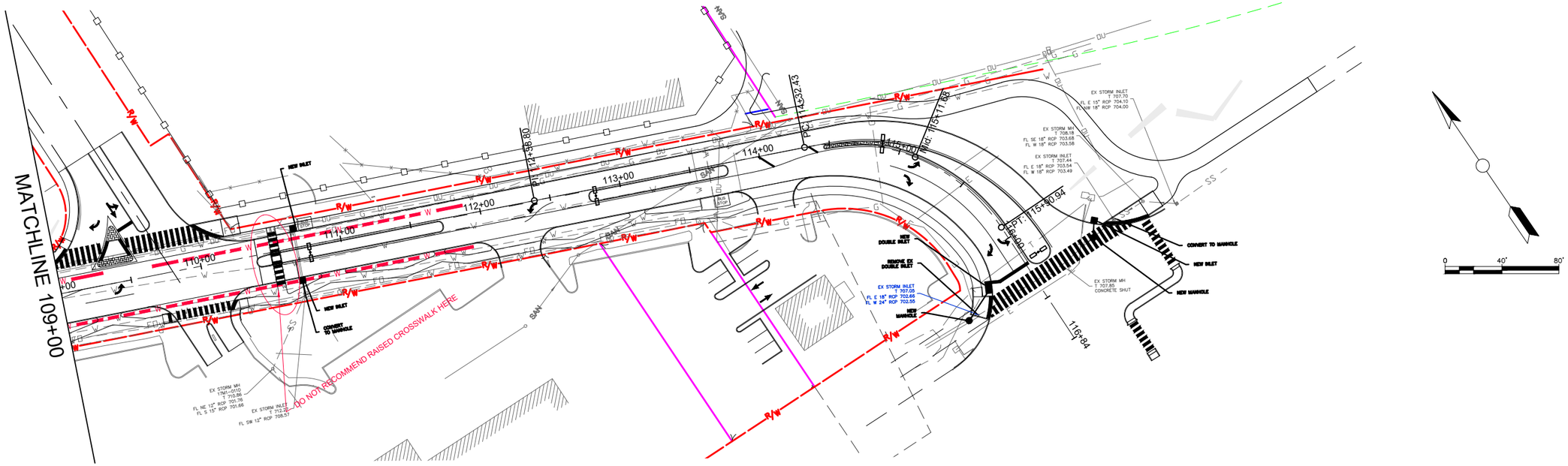

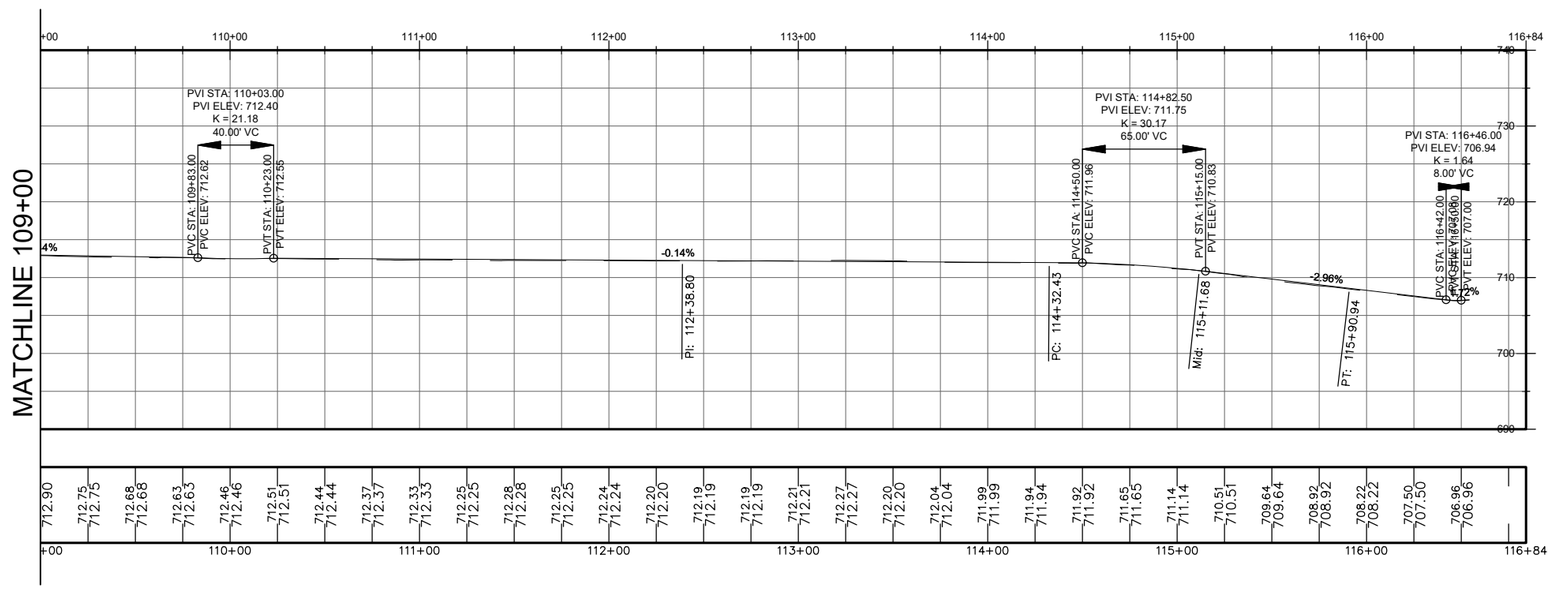

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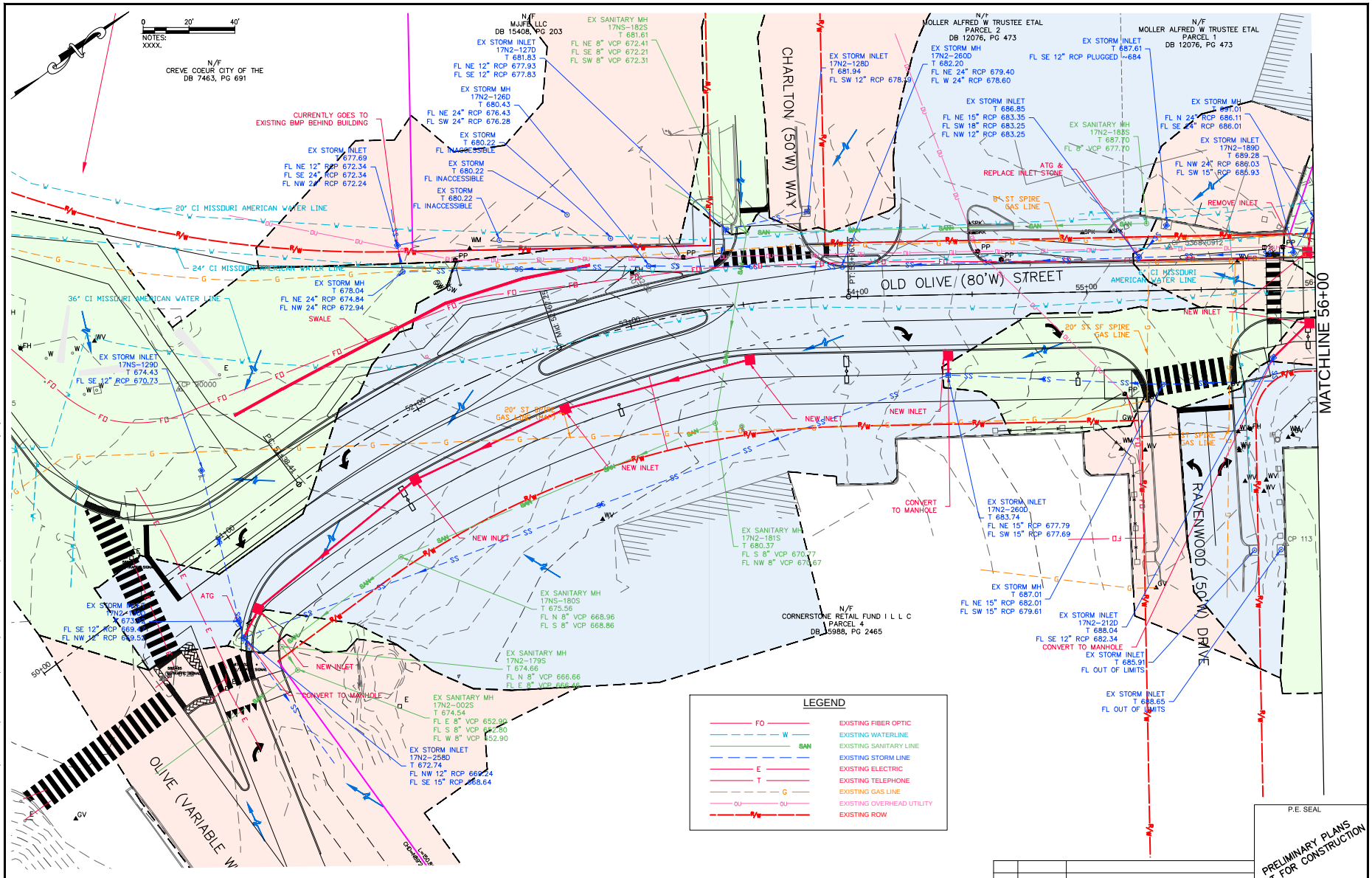

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DRAWN BY: EJR

CHECKED BY: MLB

DATE: JAN 2019

39NORTH - ANALYZE AND REDESIGN
OLD OLIVE STREET ROAD
CREVE COEUR, MISSOURI
UTILITY PLAN SHEETS

DRAWING TITLE: U1

SHEET NUMBER: 1 OF

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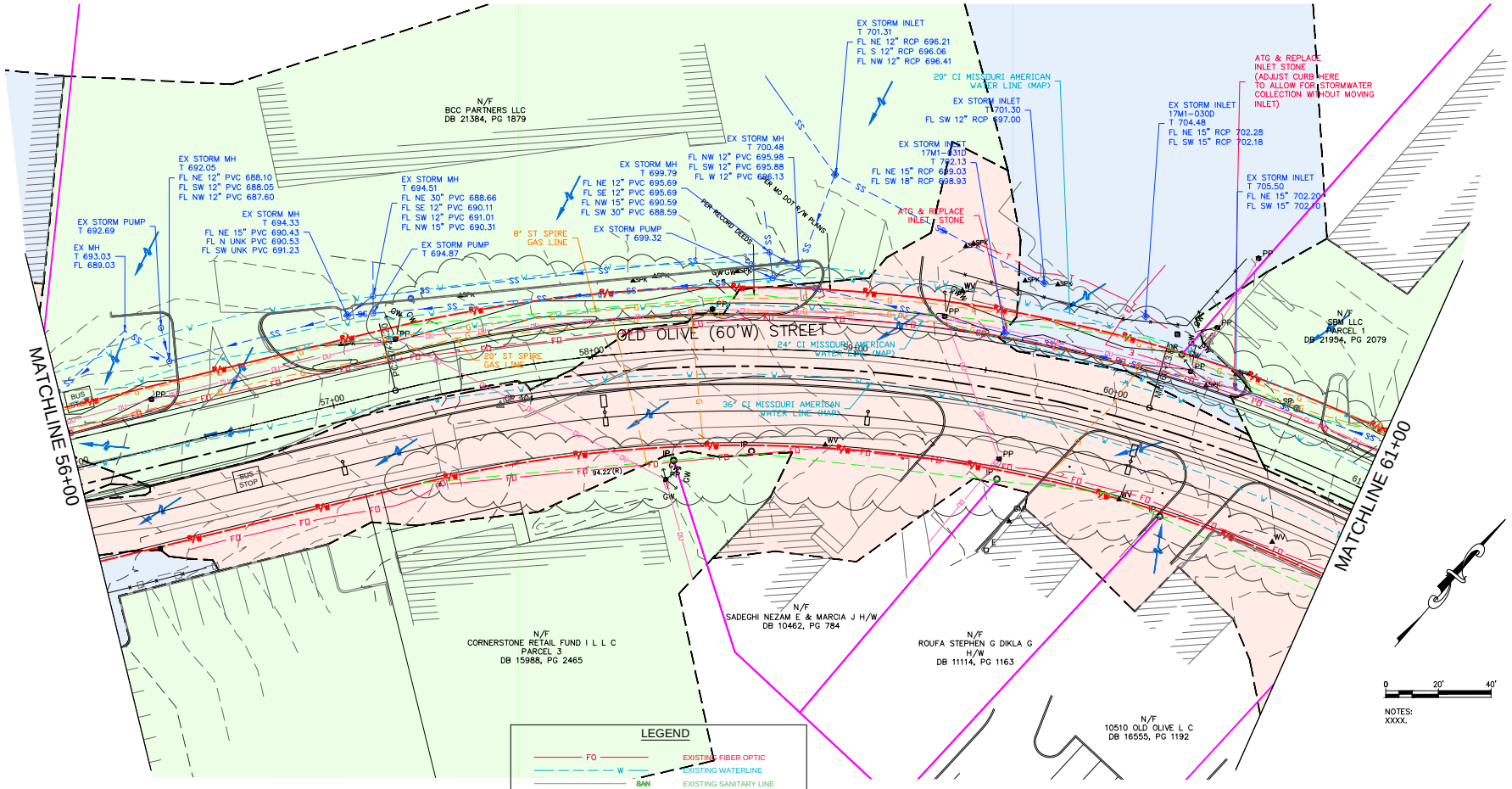

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LEGEND

FO	EXISTING FIBER OPTIC
W	EXISTING WATERLINE
SAN	EXISTING SANITARY LINE
	EXISTING STORM LINE
E	EXISTING ELECTRIC
T	EXISTING TELEPHONE
G	EXISTING GAS LINE
OU	EXISTING OVERHEAD UTILITY
	EXISTING ROW

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P.E. SEAL

PRELIMINARY PLANS NOT FOR CONSTRUCTION

MARIE C. DENNIS, P.E.
LICENSE NUMBER: E-2000162091
LICENSE EXPIRES: 12/31/2019

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39NORTH - ANALYZE AND REDESIGN
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DRAWING TITLE: U2

SHEET NUMBER: 2 OF

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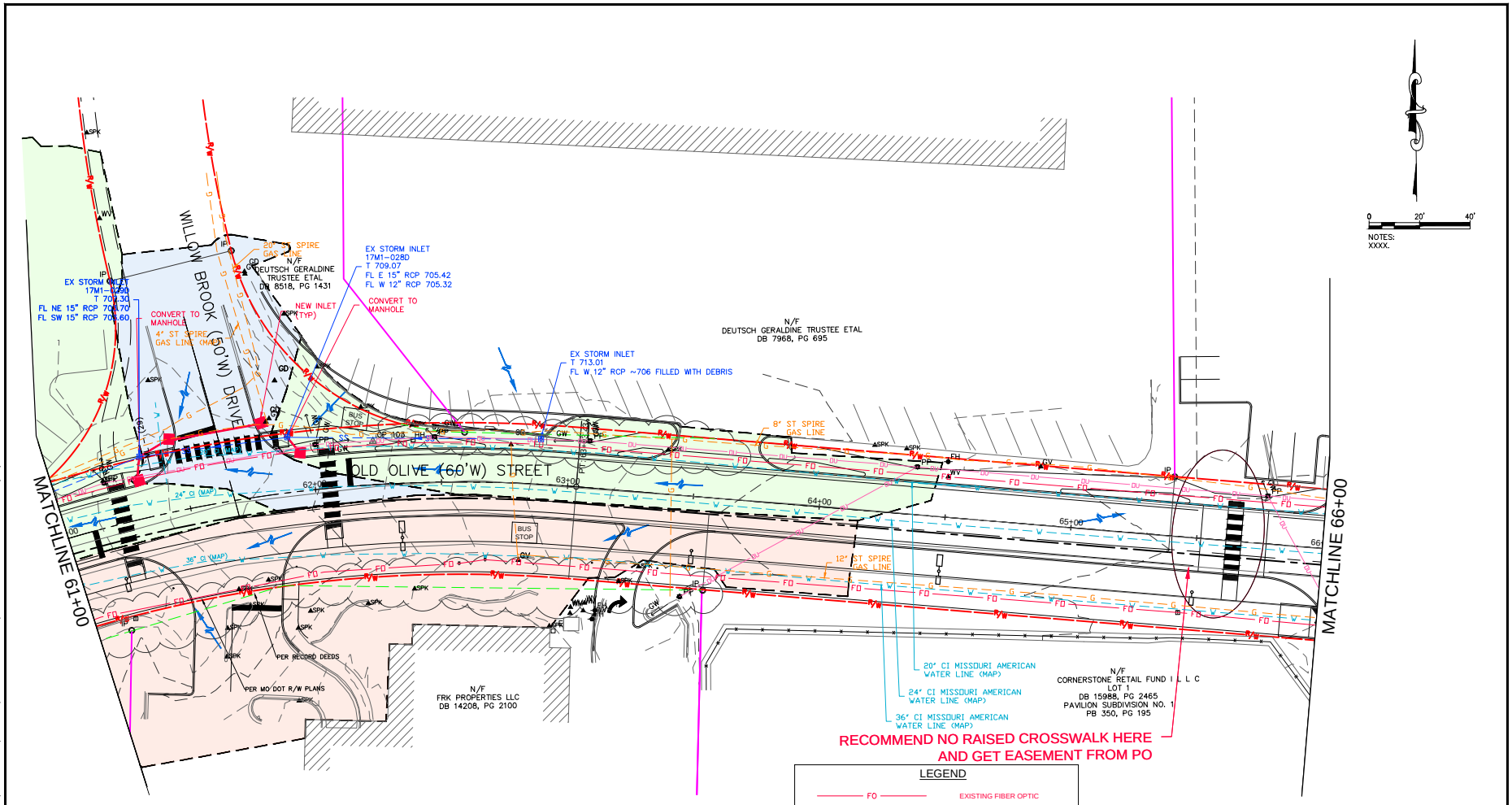

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FO	EXISTING FIBER OPTIC
W	EXISTING WATERLINE
SAN	EXISTING SANITARY LINE
	EXISTING STORM LINE
E	EXISTING ELECTRIC
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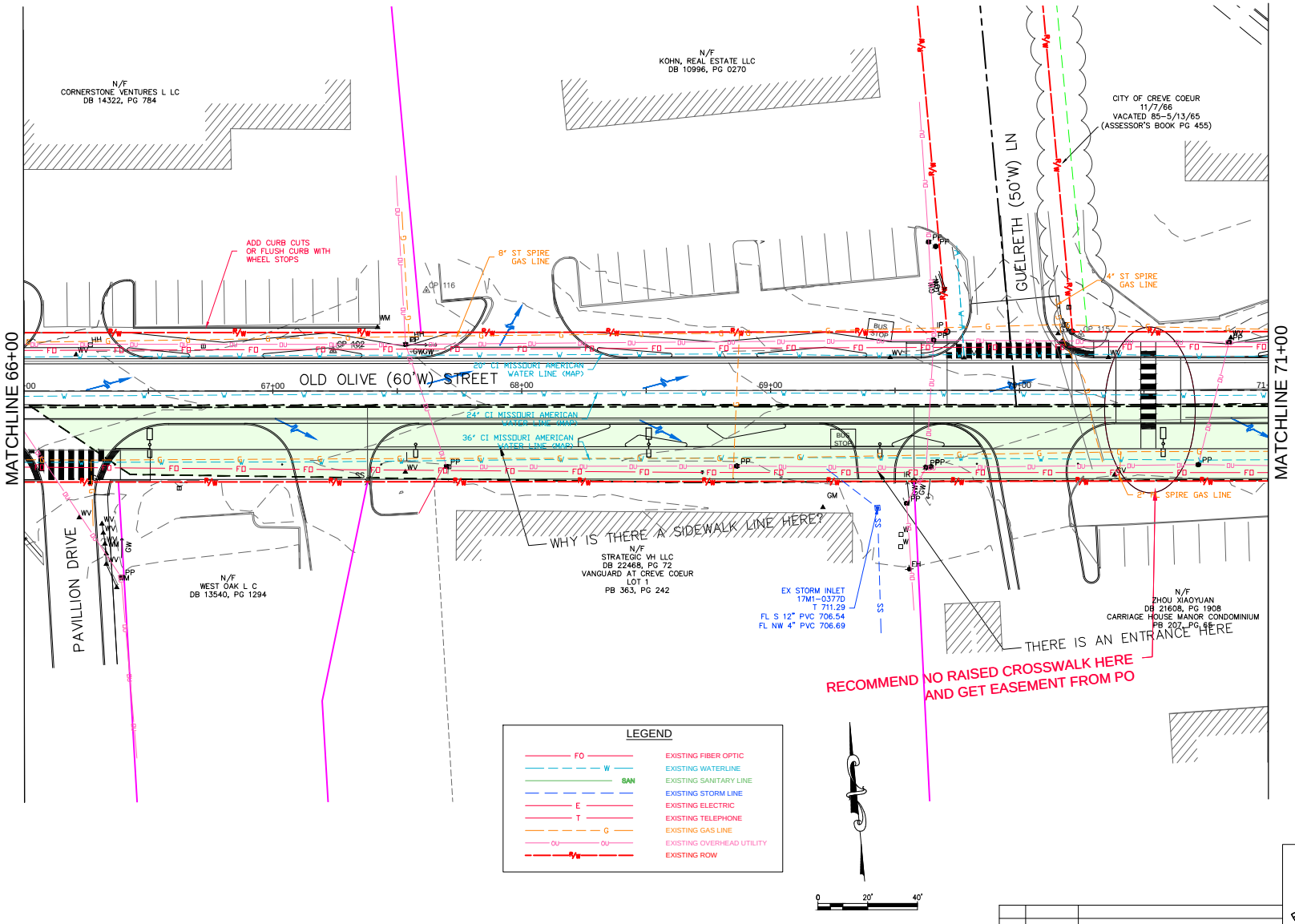

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DRAWING TITLE: U4

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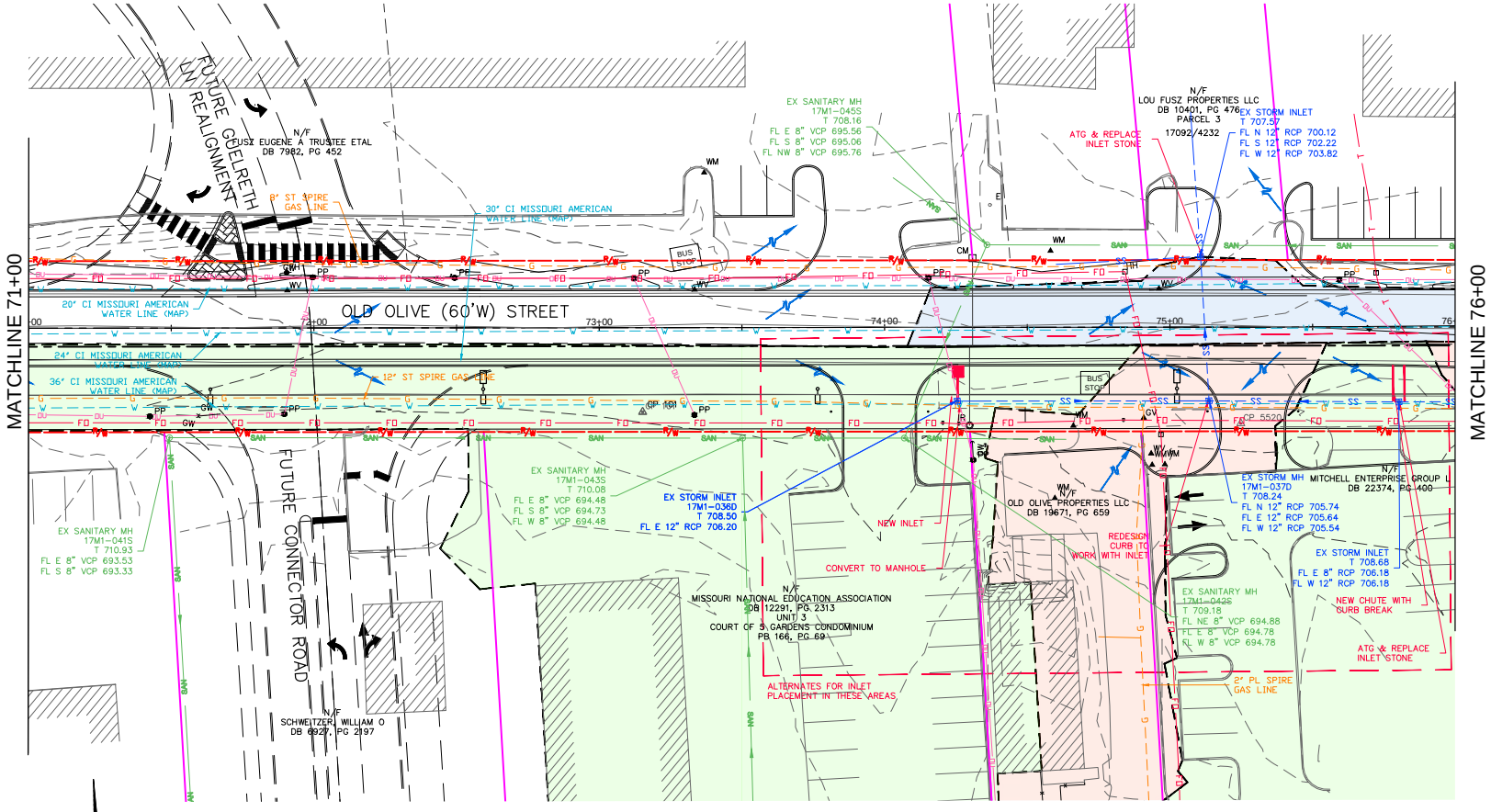

NOTES:
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LEGEND

FO	EXISTING FIBER OPTIC
W	EXISTING WATERLINE
SAN	EXISTING SANITARY LINE
	EXISTING STORM LINE
E	EXISTING ELECTRIC
T	EXISTING TELEPHONE
G	EXISTING GAS LINE
OU	EXISTING OVERHEAD UTILITY
ROW	EXISTING ROW

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DRAWING TITLE: U5

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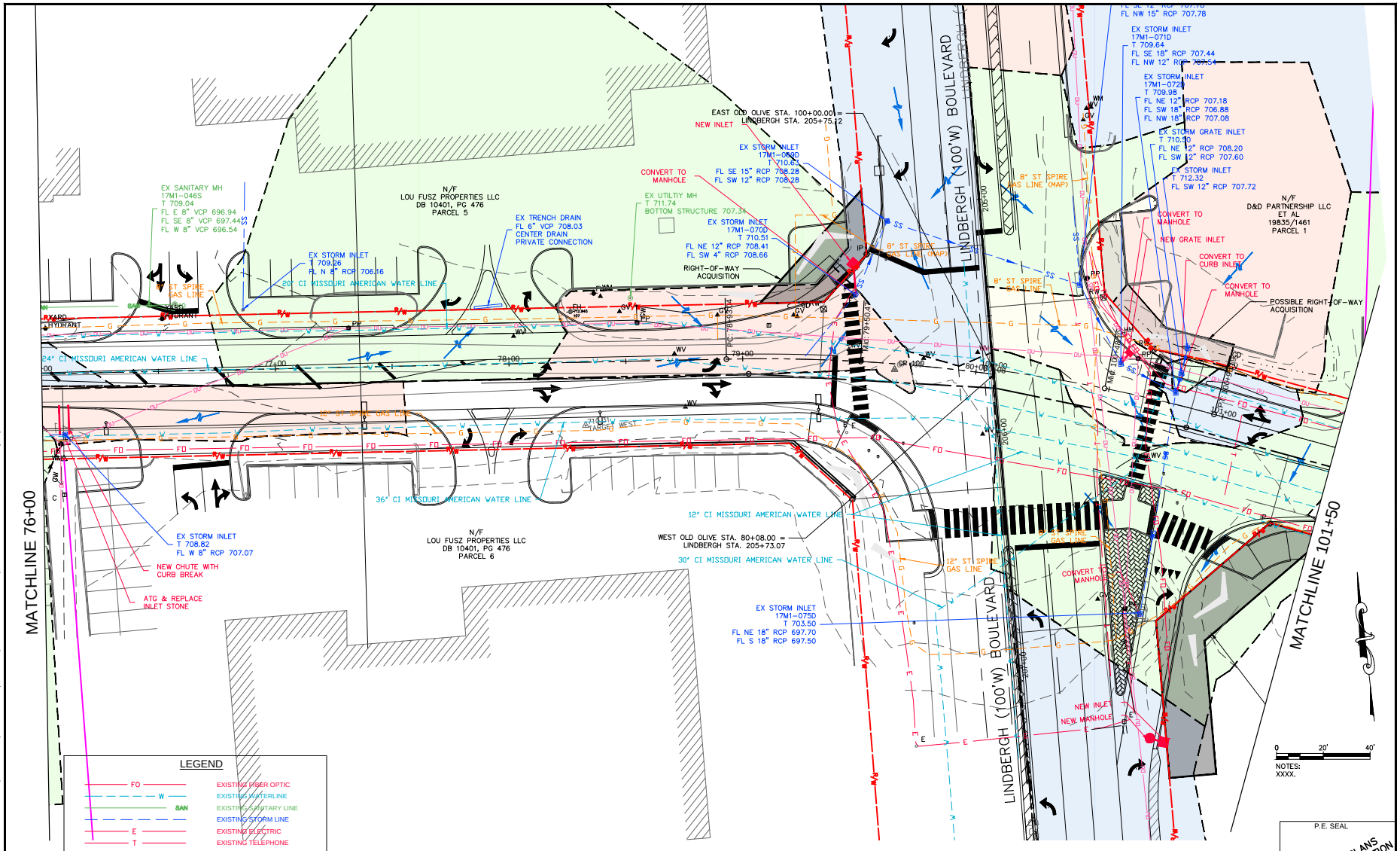

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LEGEND

FO	EXISTING FIBER OPTIC
W	EXISTING WATERLINE
SAN	EXISTING SANITARY LINE
	EXISTING STORM LINE
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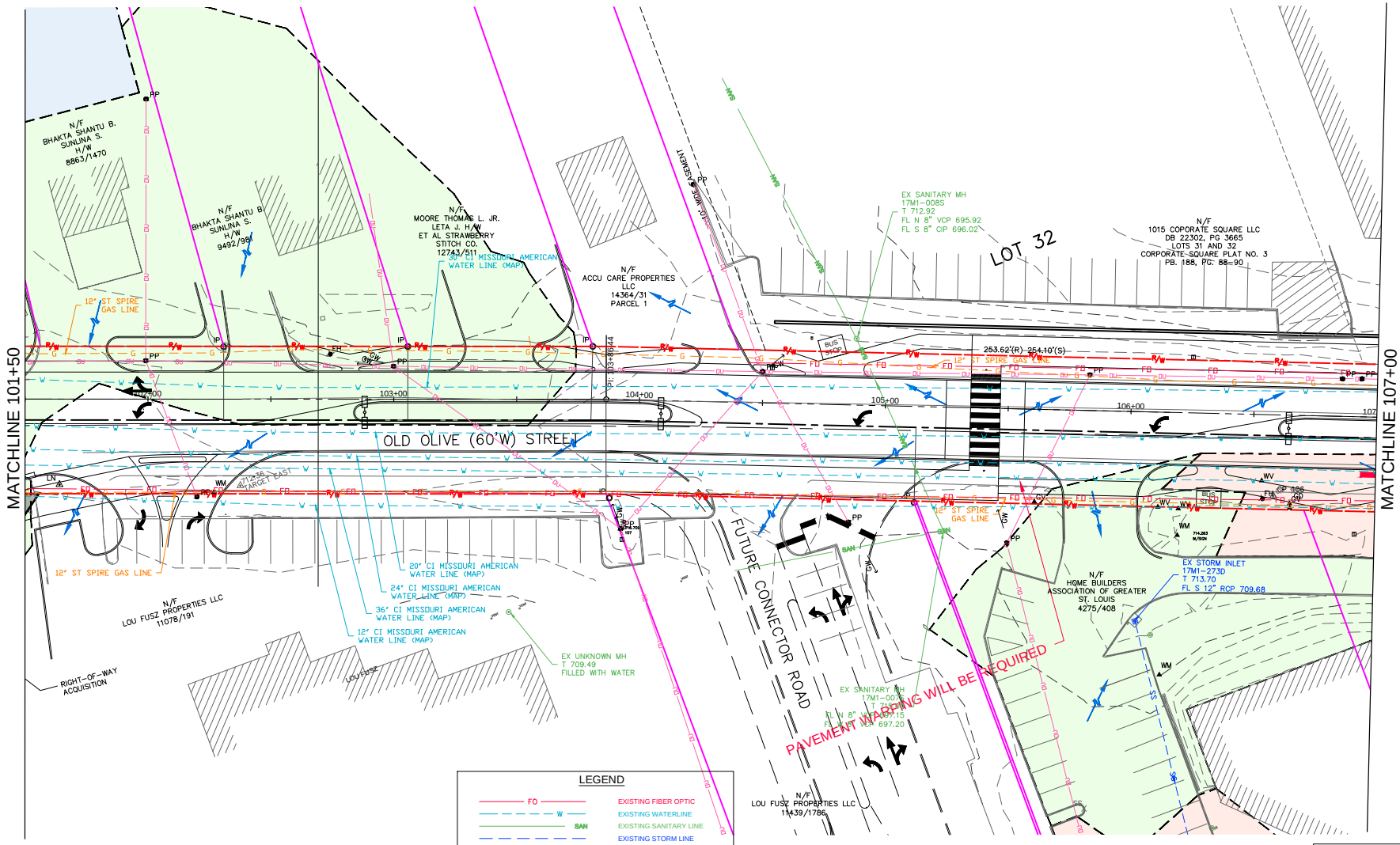

LEGEND

FO	EXISTING FIBER OPTIC
W	EXISTING WATERLINE
SAN	EXISTING SANITARY LINE
	EXISTING STORM LINE
E	EXISTING ELECTRIC
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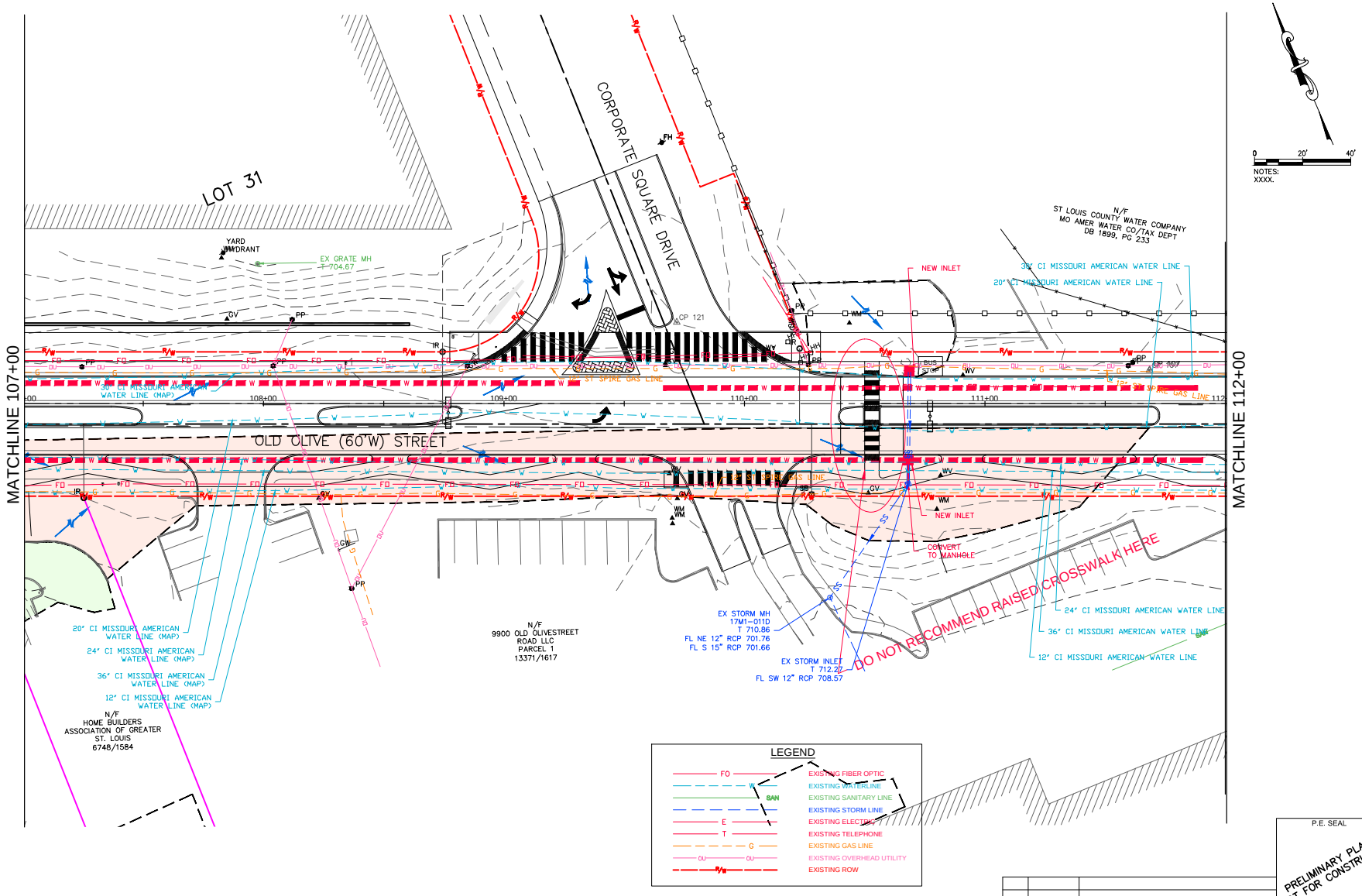

LEGEND

FO	EXISTING FIBER OPTIC
W	EXISTING WATERLINE
SAN	EXISTING SANITARY LINE
	EXISTING STORM LINE
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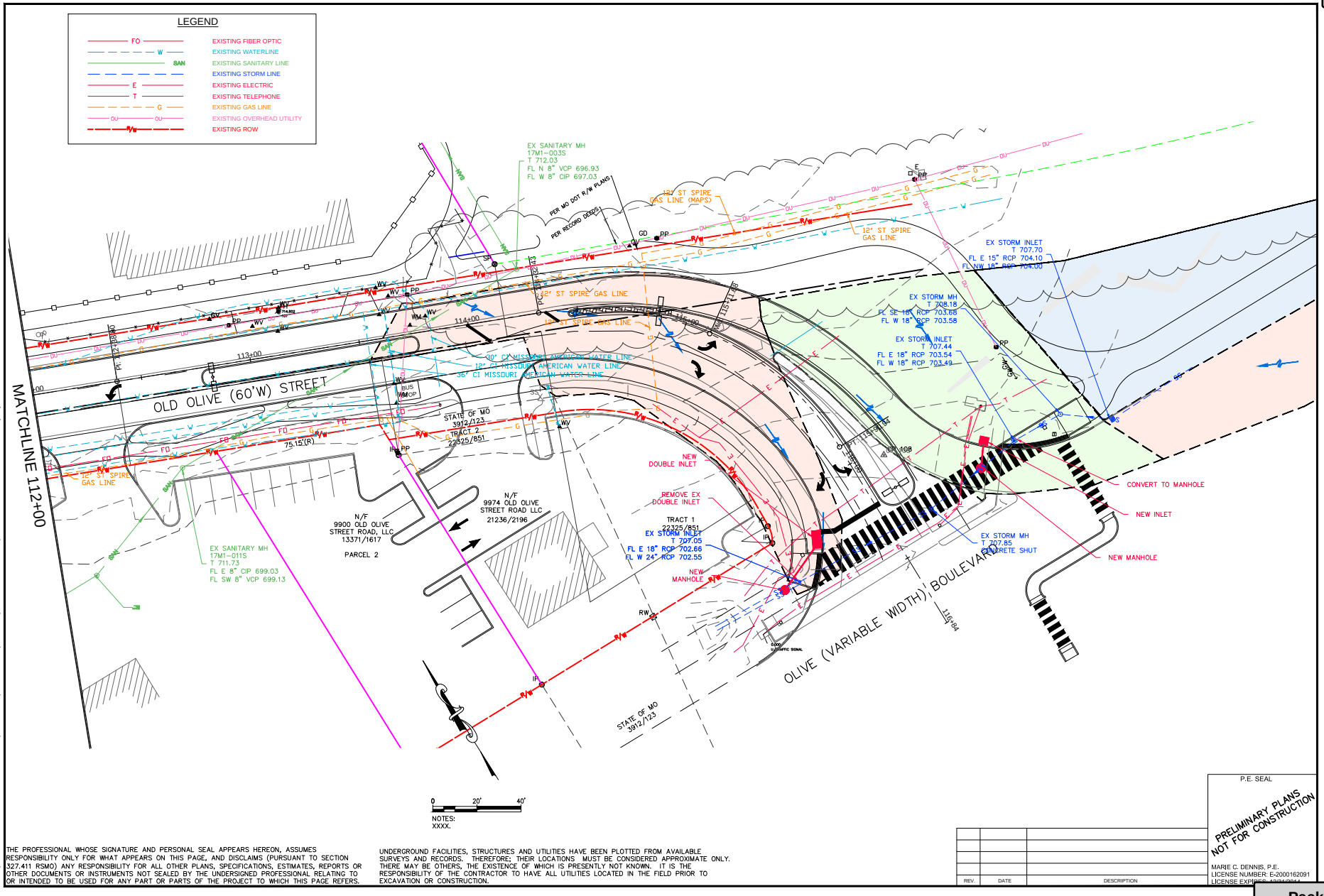

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DRAWING TITLE: U9

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TECHNICAL

Electrical and Lighting

Lighting Basis of Design
Many questions were considered and answered when determining the lighting strategy of the shared use path and roadway.

What would be the style of the light and pole?
What level of lighting would be appropriate?
Where can we install the pole?
What would be the height of the pole?
Should there be capability for wireless access?
Is Solar an option?

One of the main challenges of the project was determining locations for the light poles where utilities where not a conflict. There are many underground utilities in the area and Ameren has overhead transmission lines on the north side of the road which limits the locations of the light poles. Relocating the utility lines to underground was investigated however due to cost this was abandoned. In review of the many questions and obstructions The Design Team considered the following six lighting design options:

Lighting Design Options
Option 1: 30' tall poles with fixtures on south side of Olive Road (Modeled Cooper Galleon "AF-05-LED-E1-SL2" 4000K, 29,000 lm fixtures): Spaced 200' apart provides an average of 1.7 fc. This would produce a maximum of 2.6 fc (under fixtures) and minimum of 1.2 fc (between fixtures on the south side of road). Spacing would allow for wireless access points at each pole.
Advantages: Minimizes number of poles (one every 200 feet). Provides excellent lighting distribution for roadway and sidewalk/bike path (regardless of which side of the road sidewalk/bike path is placed). 2.16 Max/Min ratio is remarkable. Cost is at a minimum.
Disadvantages: This is only roadway lighting. Decorative/ /welcoming lighting is not present.

Option 2: Only 15' tall fixtures on south side of road (Modeled Sternberg "1527LED-8ARC45T2-MDL03-FSG" 4000K, 10,000 lm fixtures): Spaced 50' apart provides an average of 2.4 fc. Maximum of 6fc (under fixtures) and minimum of .5 fc (on north side of roadway). Area under lighting on south side (sidewalk) varies from 3 fc to 6 fc. Spacing allows for wireless access points on every fourth pole.
Advantages: Provides one side of the road very well lit and welcoming. Cost is somewhat reduced by only providing lighting on one side of the road.
Disadvantages: Lighting is significantly brighter on south side of road, thus noticeably darker on north side of road. This option uses the most quantity of light poles and thus is expensive (quantity of pole is equal to the number of poles in option 4).

Option 3: Only 15' tall fixtures on south side of road (Modeled Sternberg "1527LED-8ARC45T2-MDL03-FSG" 4000K, 10,000 lm fixtures): Spaced 66' apart provides an average of 1.8 fc. Maximum of 6 fc (under fixtures) and minimum of .3 fc (on north side of roadway). Area under lighting on south side (sidewalk) varies from 1.6 fc to 6 fc. Spacing allows for wireless access points on every third pole.
Advantages: Provides one side of the road very well lit and welcoming. Cost is reduced by only providing lighting on one side of the road. More spacing than option 2 reduces the number of fixtures.
Disadvantages: Lighting is significantly brighter on south side of road, thus noticeably darker on north side of road.

Option 4: Only 15' tall fixtures on both sides of the road (Modeled Sternberg "1527LED-8ARC45T2-MDL03-FSG" 4000K, 10,000 lm fixtures): Spaced 100' apart and staggered (zigzag pattern from south to north fixtures). Average of 2.4 fc. Maximum of 6 fc (under fixtures) and minimum of .7 (between fixtures). Roadway is lit to 1.5 fc at its minimum (middle of roadway in-between fixtures on the diagonal). Spacing allows for wireless access points on every fourth pole.
Advantages: Evenly lit and welcoming lighting on both sides of the road.
Disadvantages: This option has the most light fixtures and poles (same quantity as option 2). Light poles are also on both sides of the road and therefore this would be to most expensive option.

Option 5: Only 15' tall fixtures on both sides of the road (Modeled Sternberg "1527LED-8ARC45T2-MDL03-FSG" 4000K, 10,000 lm fixtures): Spaced 133' apart and staggered (zigzag pattern from south to north fixtures). Average of 1.8 fc. Maximum of 6 fc (under fixtures) and minimum of .4 (between fixtures). Roadway is lit to 1.0 fc at its minimum (middle of roadway in-between fixtures on the diagonal). Spacing allows for wireless access points on every third pole.
Advantages: Evenly lit and welcoming lighting on both sides of the road. Less expensive than option 4 due to fewer fixtures/poles.
Disadvantages: This option losses some light compared to option 4. Light poles are also on both sides of the road and therefore this would be fairly pricey compared to options 1-3.
Note: A brighter fixture - 12,500 lm could be used to increase the light lost from option 4. This would however make the bright spots brighter, about 7.5 fc under the fixtures.

Lighting Design Options Continued

Option 6: 30' tall 29,000 lm fixtures spaced every 200' and 15' tall 10,000 lm fixtures spaced every 100' all on south side of road. 40' tall poles hold both types of fixtures (Modeled Cooper Galleon "AF-05-LED-E1-SL2" 4000K, 29,000 lm fixtures and Galleon AF LED SL2 4000K, 10,000 lm fixtures). Average of 2.8 fc. Maximum of 7.5 fc (under fixtures) and minimum of 1.5 fc (between fixtures on south side of road). Spacing allows for wireless access points at each 40' pole.

Advantages: Evenly lit roadway with welcoming lighting on the south side of the road. Max/Min lighting ratio of 5 is very good. Lighting on only the south side of the road reduces construction cost. Light poles located every 100' reduces the number of poles compared to options 2, 3, 4 and 5 which also reduces cost.

Disadvantages: Welcoming/decorative lighting is not present on the north side of the road. Average of 2.8 fc may be more than is desired. Lower lumen fixtures could be used to bring this value down.

All Options: WIFI cabinet will be installed in the middle of the project extents on the south side of the road. Fiber Optic wiring for connections to Wireless Access Points. Lighting pedestals are also located in the middle of project extents on the south side of the road fed from a single phase pole mounted utility transformer.

City of Creve Coeur Lighting Ordinance

Creve Coeur county ordinance on site/roadway lighting does not list maximum or minimum lighting levels or allowable max/min ratios. Maximum pole height for non-residential zoning districts is stated to be 24'. MODOT lighting on Olive Rd. throughout Creve Coeur uses 40' tall poles. The ordinance may need to be addressed to allow the use of 30' height poles. The lighting has been reviewed with the City of Creve Coeur during the Core Working Team meetings and city staff meetings.

Smart Pole Technology

A company called Lumca located, in Quebec makes a variety of rail poles with smart pole integration. These are poles that are designed to accommodate features such as WIFI, electric car charging, signage, cameras, etc. They are also designed to accommodate infrastructure for Smart City technology that includes sensors, data collection, safety monitoring, etc. The unique aspect of the pole is that it is a rail pole that allow components to hang on the pole or hide infrastructure or technology inside the pole. Components are available through Lumca, creating a clean look and a pole that is flexible for future changes in the corridor needs. The pole assembly can have built in wireless hotspot, 120V receptacle, USB charger, and signage as a start. A company called NEPSA located in Northern Illinois makes smart poles similar to LUMCA.

Recommendation

The Design Team is recommending Option 6 with a fixture similar to the Cooper Galleon photometrics. The recommended pole is the Lumca Lumafix Rail pole with integrated WIFI and signage. The cost estimate reflects this recommendation but does not provide a cost for the WIFI integration.

With Option 6, light poles will be installed on the south side of Old Olive Road west of Lindbergh and installed in the median east of Lindbergh. At the new proposed intersection of Lindbergh and Old Olive lighting would be added to supplement the fixtures mounted on the traffic signal poles if clearance from the overhead electrical can be achieved. If not, free-standing light poles will be positioned in the intersection.

Recommended light pole – Lumca Lumafix

Implementation Due Diligence

During implementation phases, the final light pole and fixture will be determined and if WIFI is going to be installed. There is a cost to install a WIFI system with additional cost to pole structures, maintenance and installation.

Attachments

The following drawing and cutsheets document the recommendations of the Design Team.

- Photometrics
- Light Fixture Catalog Cutsheets
- Smart Pole Catalog Cutsheets

LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
SA	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount on 15' pole
SB	McGraw-Edison	GLEON-AF-05-LED-E1-SL2	LED	By Architect	Pole	Mount on 30' pole
SC	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount 24' on Traffic Signal pole

SITE LIGHTING CALCULATIONS - 1 OF 7
SCALE: 1"=20'

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

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

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Professional Engineer
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12/21/2018

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CERTIFICATE OF AUTHORITY: 000139
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 1 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET	01 OF 07

E1.1

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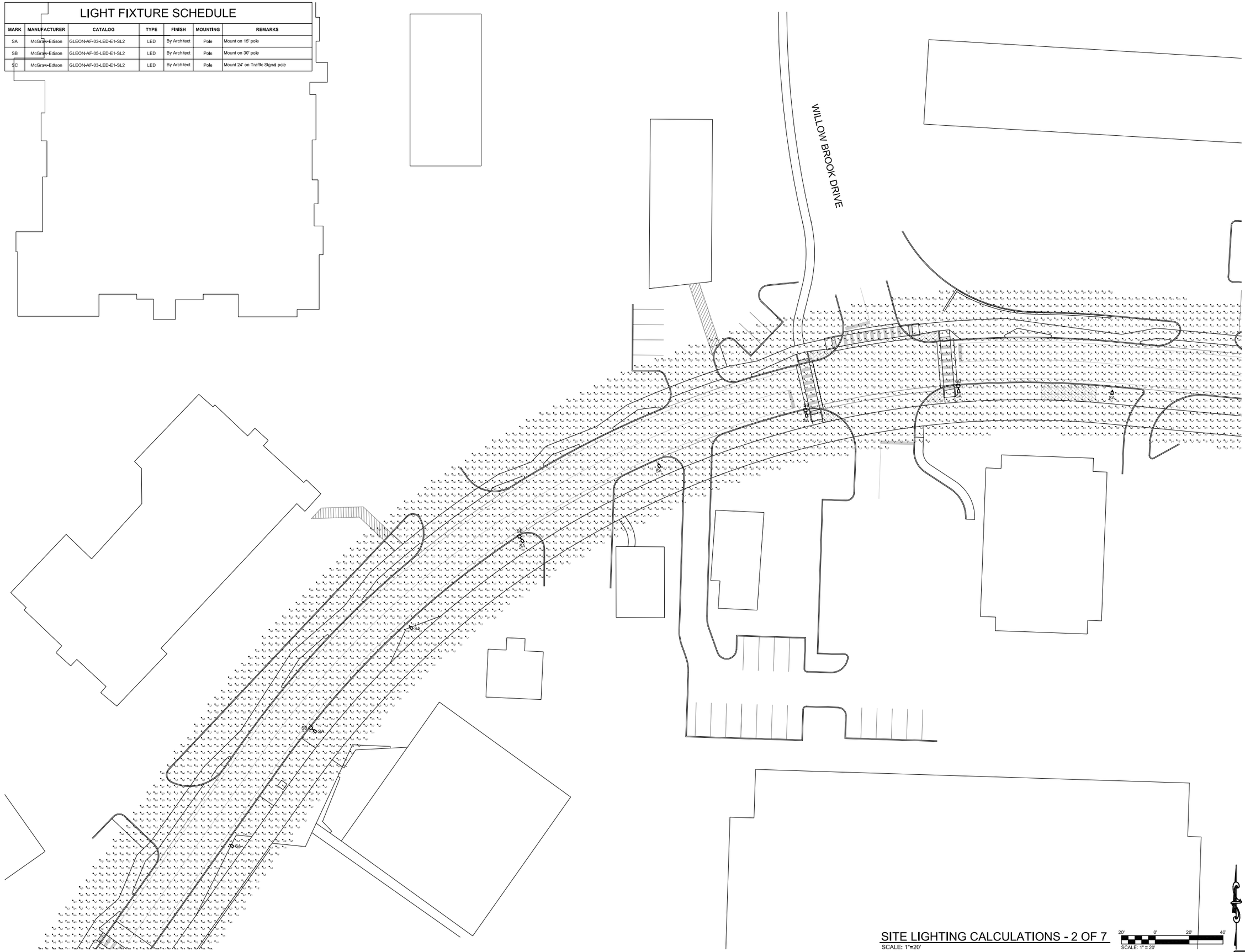
LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
SA	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount on 15' pole
SB	McGraw-Edison	GLEON-AF-05-LED-E1-SL2	LED	By Architect	Pole	Mount on 30' pole
SC	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount 24' on Traffic Signal pole



SITE LIGHTING CALCULATIONS - 2 OF 7
SCALE: 1"=20'

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

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

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DESIGN FIRM CERTIFICATE OF AUTHORITY: E-2005
CERTIFICATE OF AUTHORITY: 000139
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 2 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET	02 OF 07

E1.2

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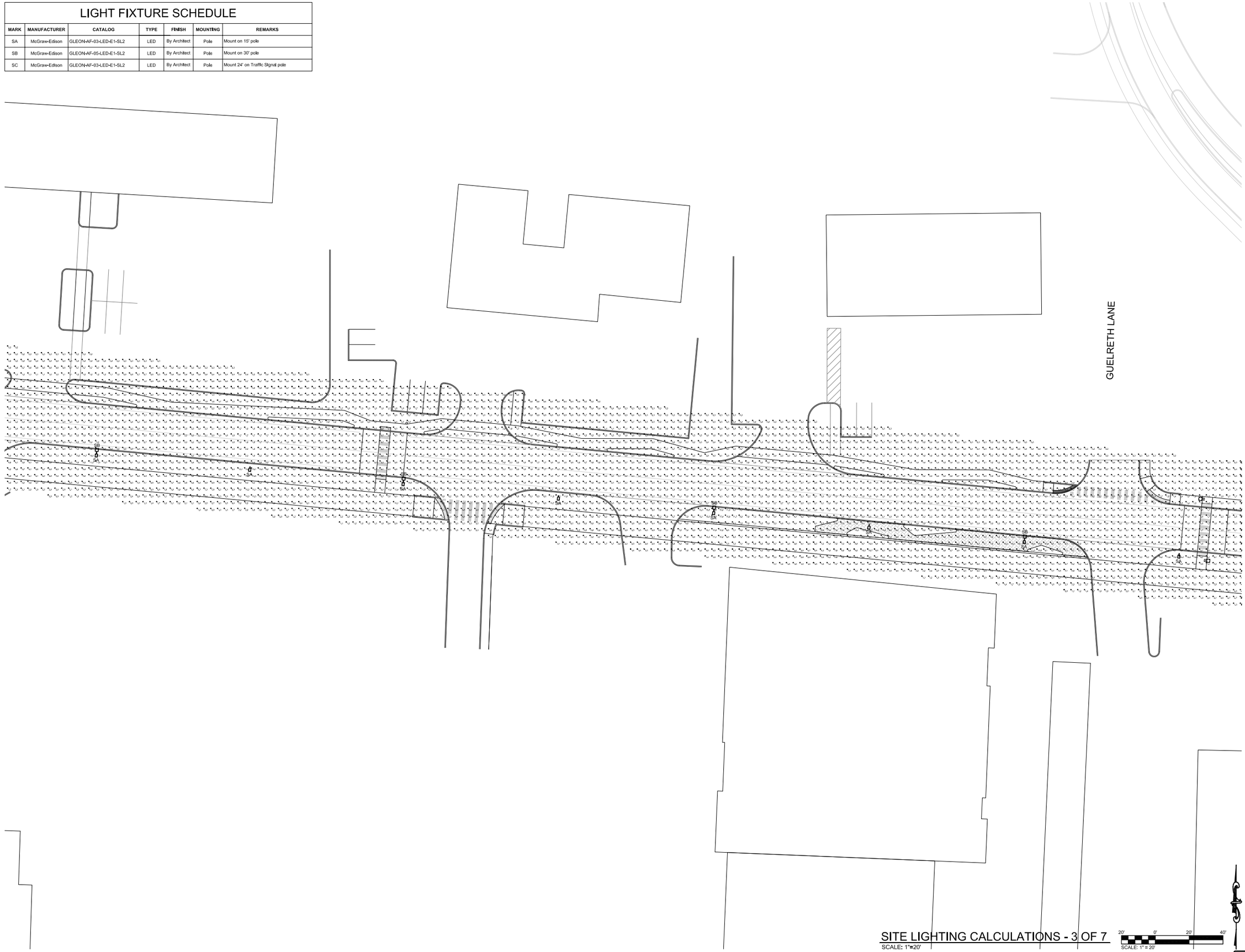
LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
SA	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount on 15' pole
SB	McGraw-Edison	GLEON-AF-05-LED-E1-SL2	LED	By Architect	Pole	Mount on 30' pole
SC	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount 24' on Traffic Signal pole



SITE LIGHTING CALCULATIONS - 3 OF 7

SCALE: 1"=20'

20' 0' 20' 40'

SCALE: 1" = 20'

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

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12/21/2018

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CERTIFICATE OF AUTHORITY: 000139
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 3 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET	03 OF 07

E1.2

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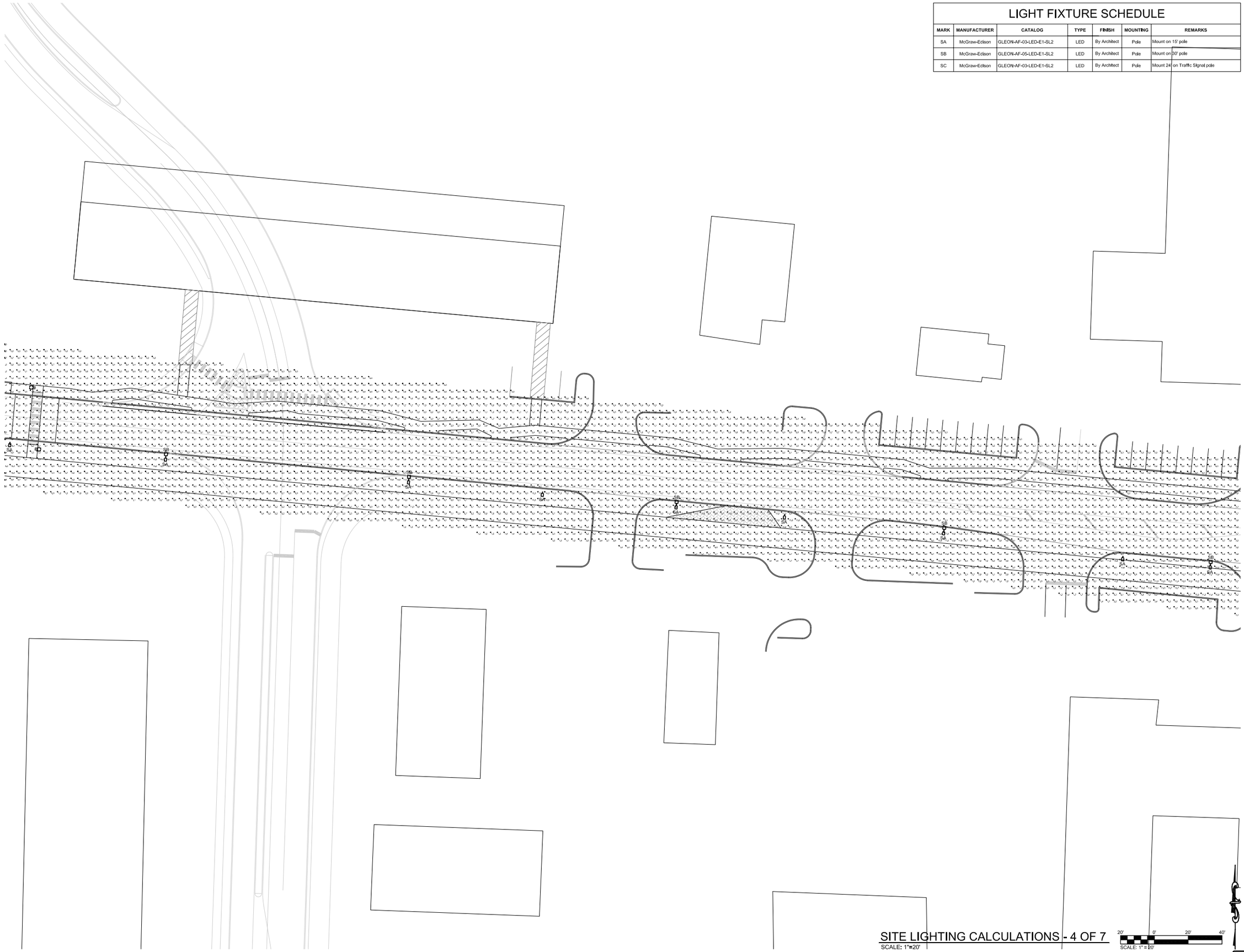
LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
SA	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount on 15' pole
SB	McGraw-Edison	GLEON-AF-05-LED-E1-SL2	LED	By Architect	Pole	Mount on 30' pole
SC	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount 24' on Traffic Signal pole



NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

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DESIGN FIRM CERTIFICATE OF AUTHORITY: E-2005000165
CERTIFICATE OF AUTHORITY: 000139
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 4 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET	04 OF 07

E1.4

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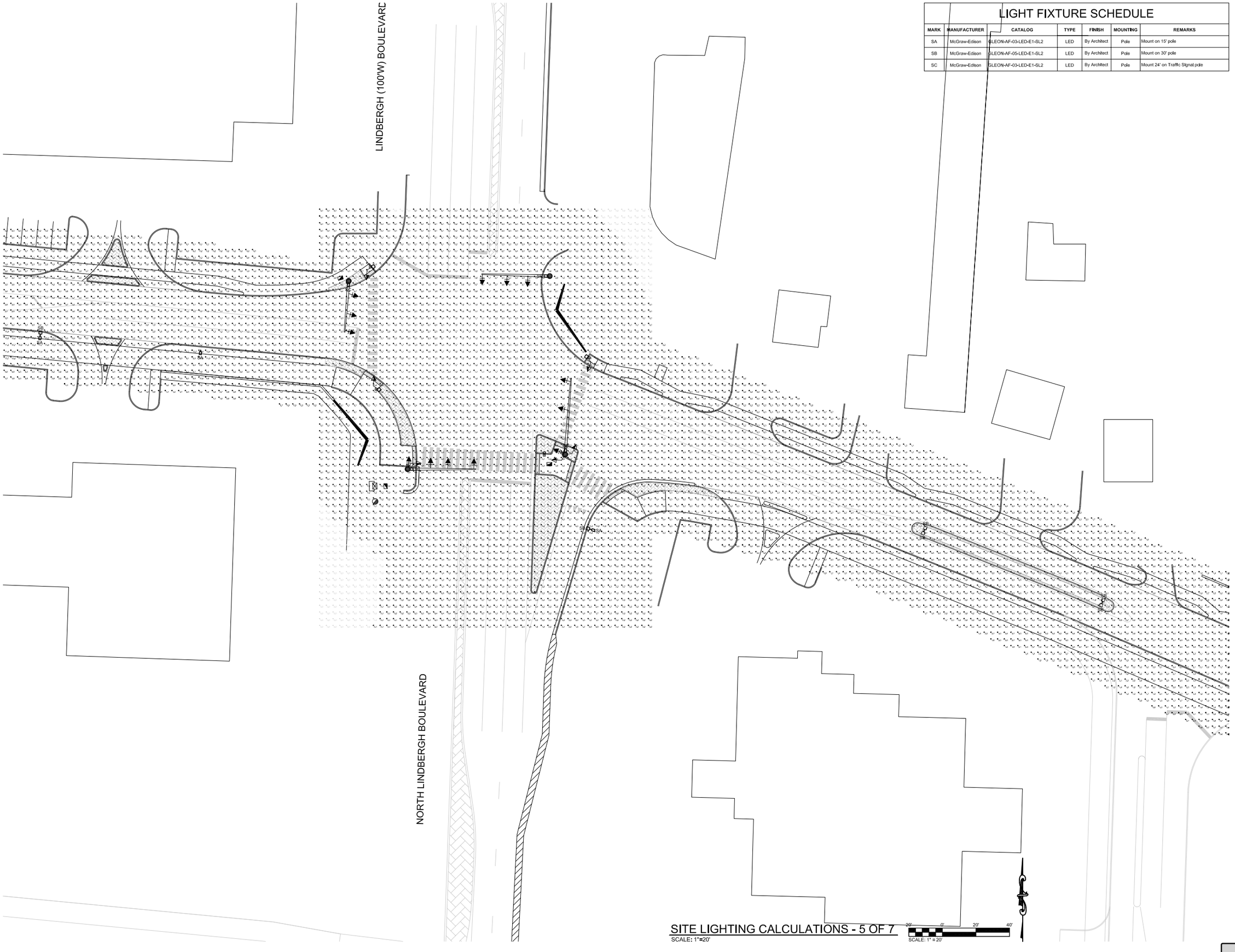

LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
SA	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount on 15' pole
SB	McGraw-Edison	GLEON-AF-05-LED-E1-SL2	LED	By Architect	Pole	Mount on 30' pole
SC	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount 24' on Traffic Signal pole

SITE LIGHTING CALCULATIONS - 5 OF 7
SCALE: 1"=20'

SCALE: 1" = 20'

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

Joseph A. Buehler
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12/21/2018

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401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
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DESIGN FIRM CERTIFICATE OF AUTHORITY: 000195
CERTIFICATE OF AUTHORITY: 000139
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 5 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET	05 OF 07

E1.5

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LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
SA	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount on 15' pole
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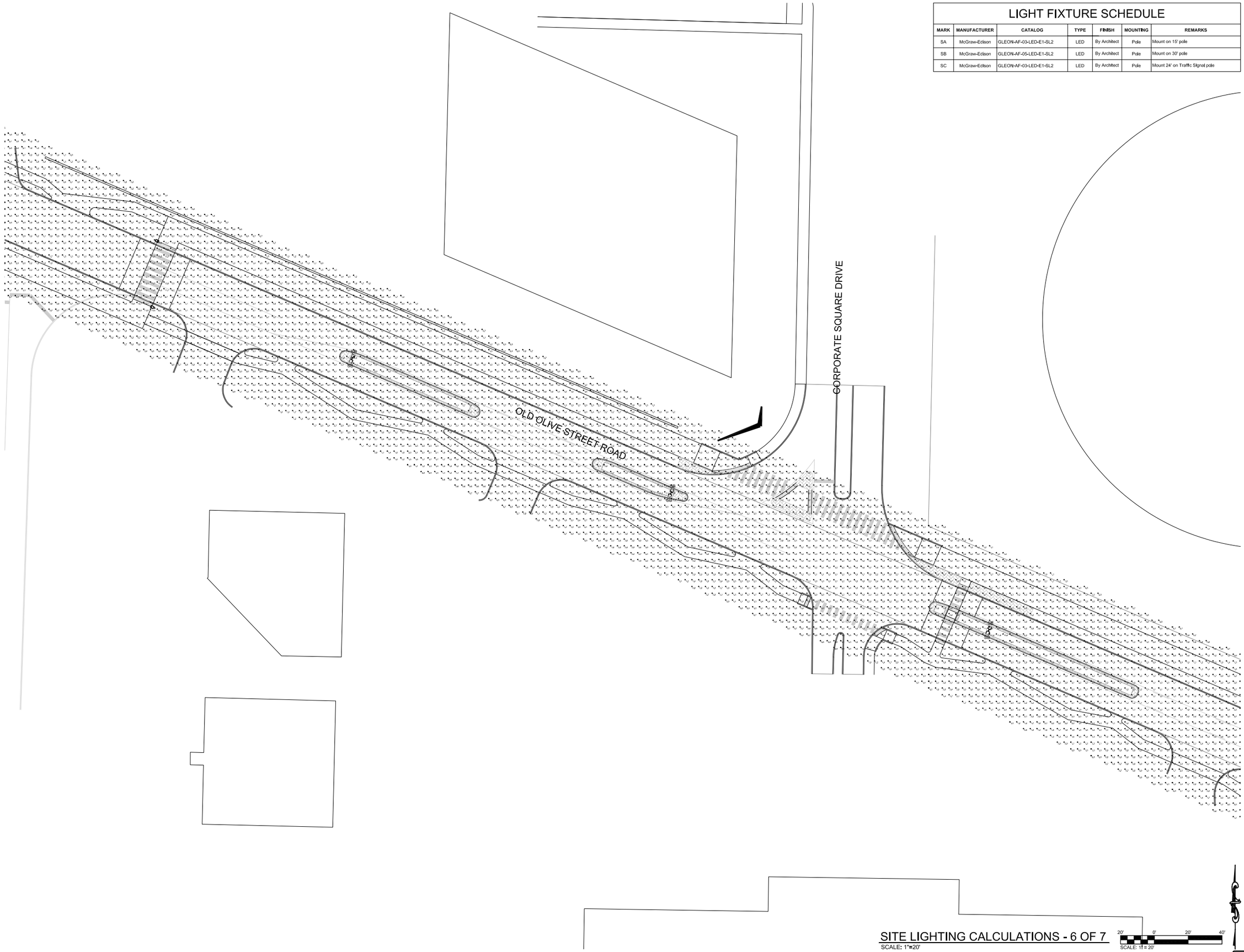

SITE LIGHTING CALCULATIONS - 6 OF 7
SCALE: 1"=20'

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

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

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DESIGN FIRM CERTIFICATE OF AUTHORITY: E-2003000165
CERTIFICATE OF AUTHORITY: 000139
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 6 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET 06 OF 07	

E1.6

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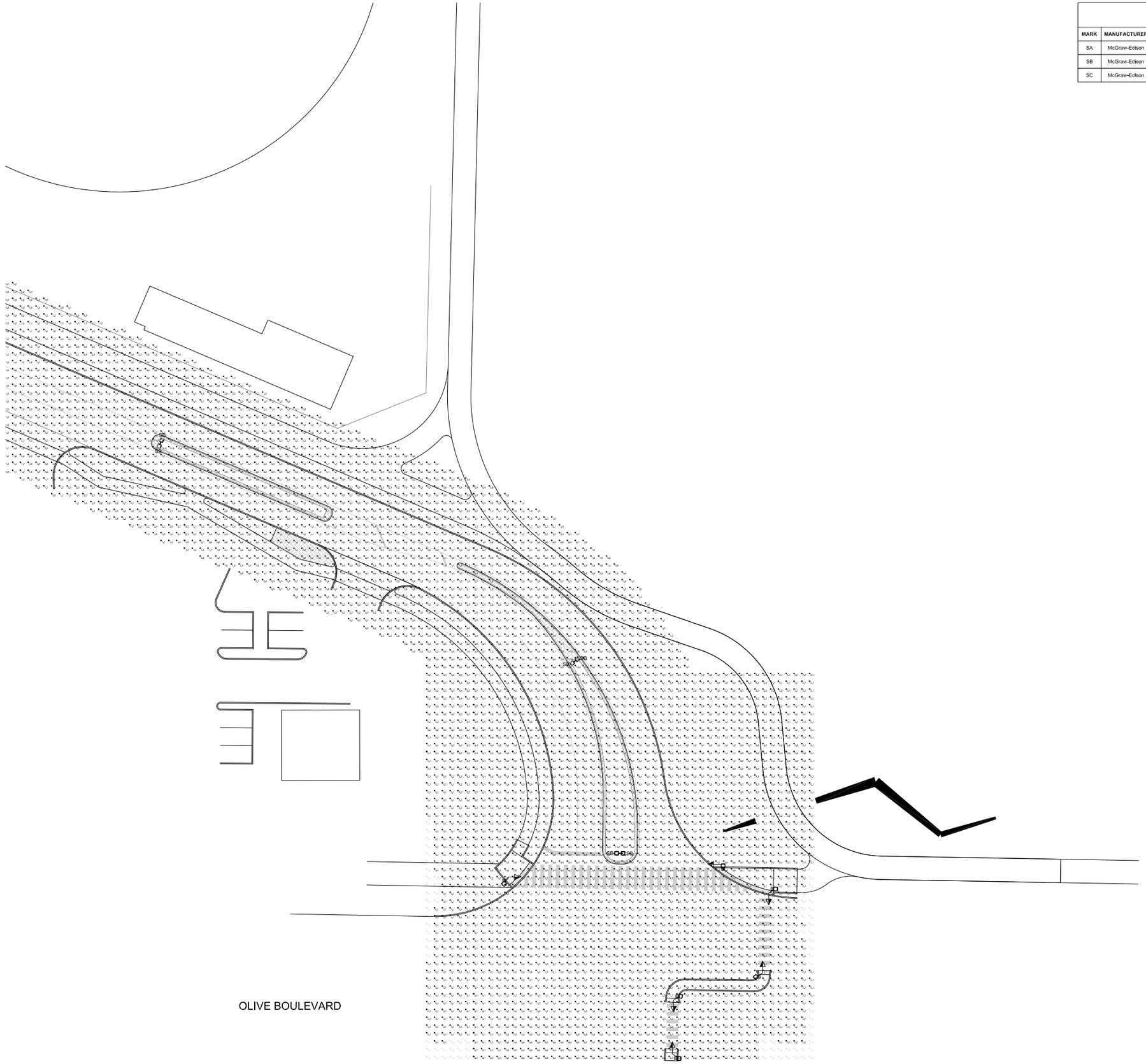

LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG	TYPE	FINISH	MOUNTING	REMARKS
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SC	McGraw-Edison	GLEON-AF-03-LED-E1-SL2	LED	By Architect	Pole	Mount 24' on Traffic Signal pole

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

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DESIGN FIRM CERTIFICATE OF AUTHORITY: E-2005000165
CERTIFICATE OF AUTHORITY: 00319
EXPIRATION DATE: DECEMBER 31, 2016

39 NORTH OLD OLIVE STREET LIGHTING

SITE LIGHTING CALCULATIONS - 7 OF 7

DATE:	12/21/2018
DESIGNED:	JAB
DRAWN:	JAD
CHECKED:	JAB
JOB NO.	1809600
SHEET	07 OF 07

E1.7

SITE LIGHTING CALCULATIONS - 7 OF 7
SCALE: 1"=20'

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

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LUMFIX

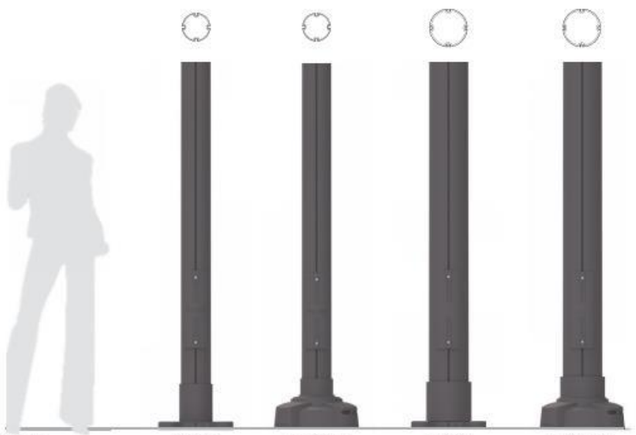
LF06: Ø6" rail pole
LF08: Ø8" rail pole

Technical informations

Date	City / Location	Project name

Type	QTY

Aluminium rail poles c/w two-piece base covers.



Pole Details	LF06	LF06 & WB18	LF08	LF08 & WB18
	Max height: 25' [7.6m]		Max height: 33' [10m]	

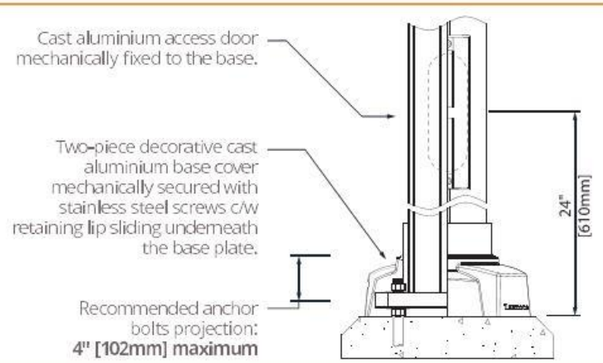
DESCRIPTION

The rail system of the LumFix allows adjustable height for multiple accessories. It eliminates primitive straps that can damage the surfaces and restores the aesthetic appearance of a decorative urban pole. Using standard hardware, this unique versatile system has been design to install accessories quickly and securely.

CONSTRUCTION

- Cast aluminium: 356.1
- Extruded aluminium: 6061-T6 alloy.

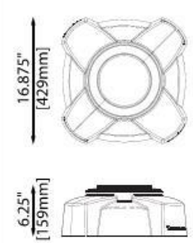
- Ø6" [152mm] or Ø8" [203mm] extruded aluminium tube.
- Access door: 17.70" [450mm] × 4.75" [121mm] sealed cast aluminium access door with anti theft screws.
- Anchor base plate welded inside and outside the perimeter of the tube.
- Two-piece injection molded aluminium base cover (optional) held captive by the anchor base plate.
- Copper ground lug.
- Stainless steel hardware.
- All metallic parts are pretreated using an environmentally friendly organic phosphating technology (PLAFORIZATION) before a polyester powder coating is electrostatically applied.
- Four (4) galvanized steel 3/4-10×15" (LF06 - 20' and lower) or 1-8×30" (LF06 - 21' and higher / LF08) anchor bolts with eight (8) washers and nuts (9.95 lb [4.52 kg]).



DPV Vibration damper

included with LumFix poles of 25' and over (installed at 55% of the pole's height).

WB18 base cover



Ordering example: LF08-20 WB18 BK GFR

Pole	Height	Base Cover	Color	Options	Anchor Bolts
----	----	----	----	----	Supplied by LUMCA
				----	Supplied by others
				----	Existing

Bolt circle Ø
11" [280mm] to 15.5" [394mm]
(Ø1" Bolt only)

Lumca reserves the right to modify the elements on this technical data sheet without prior notice.

Click on for more information

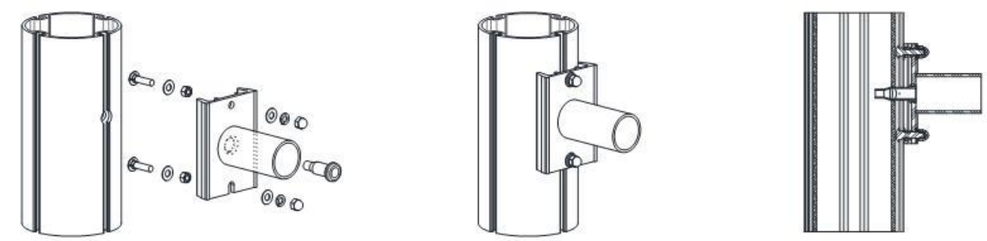
Lumca LIGHTING LIFE

T : 877.650.1693 | www.lumca.com

LUMFIX

LF06: Ø6" rail pole
LF08: Ø8" rail pole

EPA chart



RAIL SYSTEM DETAILS

LF06 round aluminium pole

		HEIGHT		WALL		WEIGHT		MAX EPA (ft²)* Wind (mph)								
	catalogue #	ft	M	in	mm	lb	kg	70	80	90	100	110	120	130	140	150
Wall 0.2" [5.1mm]	LF06-16	16	4.9	0.2	5.1	88	40	49.9	36.7	31.8	23.8	19.1	14.6	11.8	9.1	7.3
	LF06-18	18	5.5	0.2	5.1	98	45	39.2	28.3	24.0	17.5	13.7	10.0	7.7	5.5	4.0
	LF06-20	20	6.1	0.2	5.1	109	50	33.8	24.0	20.1	14.3	10.8	7.5	5.5	3.5	-
	LF06-25	25	7.6	0.2	5.1	137	62	19.6	14.2	11.3	6.9	4.3	-	-	-	-

**Including a gust factor of 1.3*

LF08 round aluminium pole

		HEIGHT		WALL		WEIGHT		MAX EPA (ft²)* Wind (mph)								
	catalogue #	ft	M	in	mm	lb	kg	80	90	100	120	130	140	150	160	170
Wall 0.3" [7.6mm]	LF08-20	20	6	0.3	7.6	220	100	-	63.7	51.4	-	29.1	-	21.0	-	8.3
	LF08-23	23	7	0.3	7.6	254	115	-	53.4	43.0	-	23.9	-	17.0	-	6.8
	LF08-26	26	8	0.3	7.6	287	130	-	44.2	35.5	-	19.7	-	13.9	-	5.6
	LF08-30	30	9	0.3	7.6	320	145	-	33.4	26.8	-	14.5	-	9.9	-	4.0
	LF08-33	33	10	0.3	7.6	353	160	-	25.5	20.3	-	10.6	-	6.9	-	-

**Including a gust factor of 1.3*

Lumca reserves the right to modify the elements on this technical data sheet without prior notice.

Lumca LIGHTING LIFE

T : 877.650.1693 | www.lumca.com

LUMFIX

LF06: Ø6" rail pole
LF08: Ø8" rail pole

Options & Accessories

- Opalin white acrylic lens
- Ø4.5" [114mm]

MK-R **MK-G** **MK-B** **MK-W**

LED accent marker for LF06 and LF08 pole.

BR
Bike rack

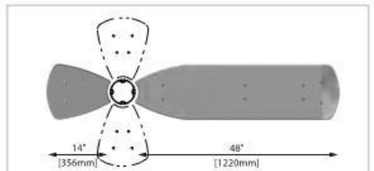
BH
Basket hanger

LRS
Banner holder

SH
Street sign holder

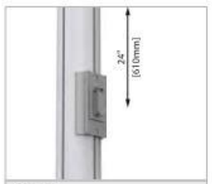
B1
Single bench

B2
Double bench

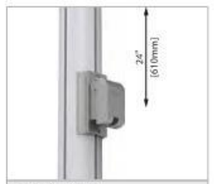


Bench configuration
For B1 & B2 benches

HEIGHT ADJUSTABLE ATTACHMENT FOR ACCESSORIES



GFR Duplex receptacle with ground fault



GFR-ICA Duplex c/w aluminum in-use cover

GFR-ICP Duplex c/w plastic in-use cover

GFR-ICR Duplex c/w retractable in-use cover

LF08 only

160° beam
800 lumens

PWL
Pedestrian LED access door

Lumca reserves the right to modify the elements on this technical data sheet without prior notice.

SMART POLE ESB-S

INTERNAL CONFIGURATION

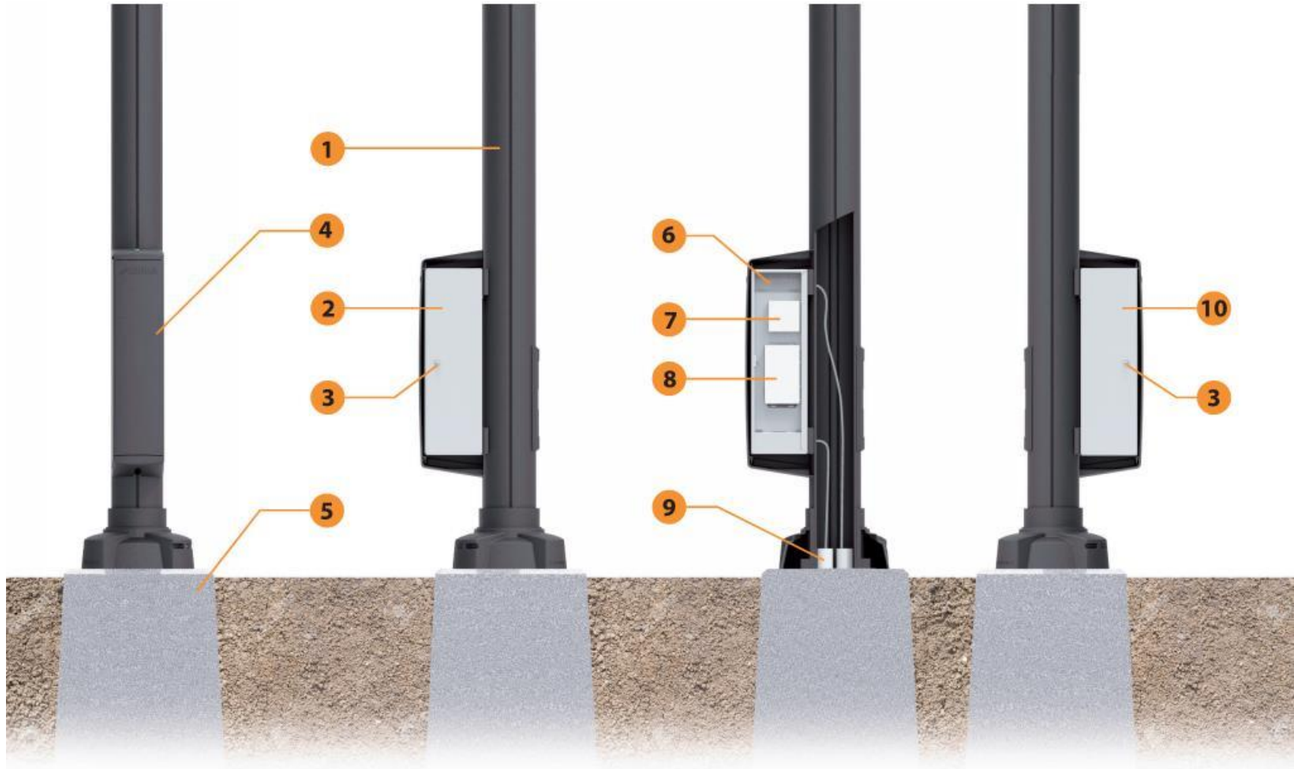
Electrical box (ESB-S)

Lumca ESB is an aesthetical base designed to receive various components. It is divided in 2 separate sections, one for network components and the second one serve as an electrical box.

Overall dimensions (W×H×D):
8"x34½"x9½" [203x876x241mm]

Mounting at variable height.

1. LUMFIX pole c/w Access door and WB18 base cover
2. Low voltage side
3. Weather-Resistant Keyed Cam Locks
4. Decorative cover (WBS)
5. New or existing concrete base (by others)
6. ESB (Sealed cabinet c/w 2 lockable doors and separator)
7. Communication device (Camera, Panic Button, etc.)
8. Control module (CM)
9. New or existing conduits in concrete base (by others)
10. High voltage side (Driver, Power supply, etc.)



This is a reference/schematique drawing, the look may be different than reality.
Lumca reserves the right to modify the elements on this technical data sheet without prior notice.

TECHNICAL

Traffic and Transportation

Project Overview
Currently, Old Olive functions as a de facto highway ramp under MoDOT's jurisdiction since the Olive and Lindbergh interchange does not include ramps for the westbound to northbound and southbound to westbound movements. A separate project is underway to reconfigure the interchange to a folded diamond interchange which would accommodate all traffic movements at the interchange and eliminate the need for interchange traffic to use Old Olive East and Old Olive West for those trips. While the basic configuration of that interchange was considered and included in the analysis for this project, the detailed design of the interchange will be deferred to the other project.

Functional Classification
The existing segments of Old Olive East and West mix local traffic with interchange trips, but the focus is maintaining efficient through traffic. The Great Streets project would not be possible without the proposed interchange project, and it is expected that these recommendations would not be implemented until the interchange comes on line and the Old Olive right of way is jurisdictionally transferred to the City of Creve Coeur. With the transition, CBB recommends that the functional classification of Old Olive be shifted to a minor commercial collector road with a focus on accommodating all travel modes and less vehicle-centric. Additional priority will be given to non-motorized travel. Where possible, the reconfiguration should attempt to reduce through traffic, reduce travel speeds and accommodate all users.

A change in the character of the roadway is proposed by rethinking the priorities of the corridor to less auto-centric. CBB recommends changing to a minor collector functional classification (City commercial street) with a posted speed limit of 25 mph or 30 mph and a design speed of 30 mph or 35 mph.

Convertible Section
The project team envisions a Convertible Section based on 33' of pavement which would allow one through lane in each direction plus other various elements as appropriate along the corridor. Those elements include: bonus landscape area, left-turn lane, center medians and on-street parking. The Convertible Section concept sets the location of the infrastructure elements in the corridor such as sidewalks, shared use path, roadway lighting, drainage facilities, etc., while allowing flexibility for left turn lanes that are needed in the future. These elements allow the corridor to provide a better balance with non-motorized users. As a result, sub-standard travel lane widths are proposed to accommodate additional features in the available right of way and also as an intentional traffic calming measure to reduce average travel speeds.

There is an ability to accommodate some on-street parking, where appropriate, within the 33' section. In addition, there may also be opportunities for private developers to widen the pavement for an on-street parking lane in front of their property, with street-fronted redevelopment projects in the future.

Bicycle and Pedestrian Accommodation
Pedestrian and bicycle accommodations are a key component of the proposed reconfiguration of Old Olive. CBB recommends that facilities be provided along both sides of the entire corridor. Multiple safe crossings will also be necessary to create a District where pedestrians can freely travel. Several different options for those facilities were vetted through this process including separate bike/ped facilities, on-road bike lanes, cycle tracks, etc. Ultimately, CBB recommended an off-street, two-way, mixed-use trail on one side of the roadway with a typical sidewalk on the other. All facilities must be upgraded to current ADA compliance using PROWAG standards including properly designed ramps and marked crossings.

Transit
Transit is another key component of a vibrant economic District. Meetings were held with Bi-State/Metro Transit early in the planning process to identify their issues of concern, needs, and future plans. Metro relies on local agencies to provide and maintain the bus stops. The new interchange will allow changes to the current transit routes which have not yet been identified by Metro. CBB recommends that all current and proposed transit stops along Old Olive be enhanced. Metro specifically noted that very few of their bus stops were ADA accessible. CBB recommends that all current and proposed bus stops in the corridor be upgraded to ADA compliant facilities using PROWAG standards. Where bus routes cross along the corridor, CBB recommends marked crosswalks nearby to accommodate users that will inevitably cross the street from one stop to another adjacent stop.

Traffic Analysis

Old Olive/Lindbergh Intersection
CBB prepared the traffic analysis Technical Memorandum for the Old Olive/Lindbergh intersection that was submitted to MoDOT for review. This memorandum documented two concepts for the intersection:

1) Limited access intersection – no left turn lanes from Old Olive to Lindbergh
2) Full access intersection – left turn lanes from Old Olive and Lindbergh

MoDOT issued an acceptance letter, requiring the full-access traffic signal on Lindbergh Boulevard. MoDOT included additional comments more relevant to the Olive Boulevard/Lindbergh Boulevard Interchange project that will be addressed further in that separate study.

The new full-access intersection on Lindbergh Boulevard at Old Olive will require additional turn lanes on Lindbergh Boulevard which will require significant widening of that roadway. Those turn lanes include new northbound and southbound left-turn lanes and a new northbound right-turn lane. Additionally, CBB recommends a three-lane cross section for both approaches of Old Olive to Lindbergh to provide separate left-turn and shared through/right-turn lanes.

Connector Roads
It became apparent that, with the selection of a full-access traffic signal on Lindbergh Boulevard for Old Olive Street, the use of the proposed future east and west connector roads would be significantly diminished. In fact, they become redundant connections with respect to the Old Olive corridor. They may, or may not, be beneficial to the District with respect to access depending on how the ground around their proposed alignments is ultimately developed. CBB recommends that these roads be considered as three-lane facilities with one lane in each direction plus a center left-turn lane, at this time.

Intersection Analysis
Additional detailed analyses were completed for ten key intersections:

1) Olive Boulevard and Old Olive West
2) Old Olive and Ravenwood Lane
3) Old Olive and Willow Brook
4) Old Olive and Pavilion
5) Old Olive and Guelbreth
6) Old Olive and Potential Future West Connector Road
7) Old Olive and Lindbergh Boulevard
8) Old Olive and Potential Future West Connector Road
9) Old Olive and Corporate Square
10) Olive Boulevard and Old Olive East

After meeting with Lou Fusz dealership representatives, it was indicated that the body shop site will possibly be available in the future for redevelopment. The potential to realign Guelbreth with the proposed west connector road intersection could be considered with this project. It creates new intersection with increased developable frontage.

Preliminary Traffic Signal Design Plans (30% Plans)
Preliminary design plans were prepared for modification of the traffic signals at the following intersections:

- Olive Boulevard with Old Olive West - modification
- Olive Boulevard with Old Olive East - modification
- Lindbergh at Old Olive Street Road – new signals
- Typical installation for pedestrian midblock warning signs.

These plans were developed to the 30% level, so additional design and coordination will be required as part of a future project to prepare permit-level (100%) drawings. One specific issue of concern was conflicts with existing overhead power lines at the Old Olive/Lindbergh intersection. While best efforts were made at this stage of design to avoid conflicts, additional coordination with Ameren will be required to address conflicts which cannot be avoided by relocating or raising the overhead utility lines.

As part of the aesthetic enhancements proposed for the project, CBB recommends that the two existing and one proposed traffic signals match the City of Creve Coeur's standards with black powder coated hardware and internally illuminated street name signs. Painting equipment in the field is not feasible, so the current budget estimates include replacement of the existing signal posts and mast arms at the two existing signalized intersections.

Since all three traffic signals will be owned by MoDOT, these locations will need to be added to the current agreements between the City and MoDOT whereby the City is responsible for the operations and maintenance costs for the upgraded items, beyond the typical MoDOT standard items.

As requested by the project team, CBB included a typical design detail for a Rectangular Rapid Flashing Beacon (RRFB) installation which could be used at midblock locations along the corridor. Each location would include two posts on appropriate foundations (one on each side of the roadway), four signs (one on each side of both posts), and four RRFB's (one below each sign). Hardwired or solar powered installation options are available from various manufacturers. If the hardwired installations are selected, a power drop with meter and disconnect will be needed for each location. Additional coordination with Ameren would be required to provide hardwired power.

Implementation Due Diligence

- Preparation of 2019 EW Gateway funding application and/or other opportunities
- Jurisdictional transfer of Old Olive right-of-way, after interchange completion
- Completion of Traffic Signal Item Permit Design Plans

Traffic Model and Signalization

Traffic Analysis Technical Memorandum
CBB completed the Traffic Analysis Technical Memorandum dated September 21, 2019 to vet the basic elements of the roadway system including: the need for auxiliary left and right turn lanes at key intersections, MUTCD warrants for a new traffic signal on Lindbergh Boulevard, and levels of service for the key intersections. Traffic counts from the previous studies in the 39°N District were supplemented with additional counts of certain driveways along the Old Olive corridor. Projections for future traffic levels were reconsidered based on the proposed changes in access and the build-out of the 39°N Master Plan development. Operational level of service calculations were made using Synchro software to determine the ability of the proposed improvements to accommodate vehicular traffic. The Technical Memorandum is a 100% complete document which was accepted by MoDOT regarding basic design elements on their right of way. The study portion of this project is now complete.

MoDOT provided an Approval Letter dated November 2, 2018 for the project concept based on the Technical Memorandum. MoDOT required the full access, signalized alternative for the intersection of Old Olive and Lindbergh. MoDOT included additional comments related to the Olive and Lindbergh interchange which will be addressed in a separate project related specifically to the interchange. The next step in MoDOT's approval process will be development of design plans for review which will, when completed and accepted by MoDOT, allow for construction on their right of way under permit.

Preliminary Design Strip Map
CBB completed the Preliminary Design Strip Map for Roadway Alignment and Preliminary Typical Sections for Proposed 33-Foot Convertible Cross Section to illustrate the basic physical configuration of the proposed changes in the surface elements within the right of way. The purpose of the strip map was to illustrate use and width of proposed travel lanes, curbs, sidewalks, two-way shared use path, intersection configurations, locations of marked pedestrian crossing locations, medians, islands, landscaped areas, current and potential future driveway locations, potential connector road locations, potential realignment of Guelbreth, etc. The purpose of the typical sections was to illustrate the various cross section configurations available currently and in the future within the 33-Foot paved footprint and also illustrate how the project elements fit (or don't) within the existing 60-Foot right of way. These elements were developed to a 30% design level. Future steps will be required to complete the design for review and permit by the City of Creve Coeur, MoDOT, MSD and the various affected utility companies. Coordination with some property owners will also be required for acquisition of right of way and or temporary/permanent easements which may also include reconstruction of private driveway approached to tie into the modified Old Olive pavement.

Traffic Signal Item Locations Map
The Traffic Signal Item Locations Map illustrate the proposed locations for new and modified electrified traffic control devices, traffic signals and flashing pedestrian warning beacons. This map is for summary illustrative purposes, so this deliverable is 100% complete.

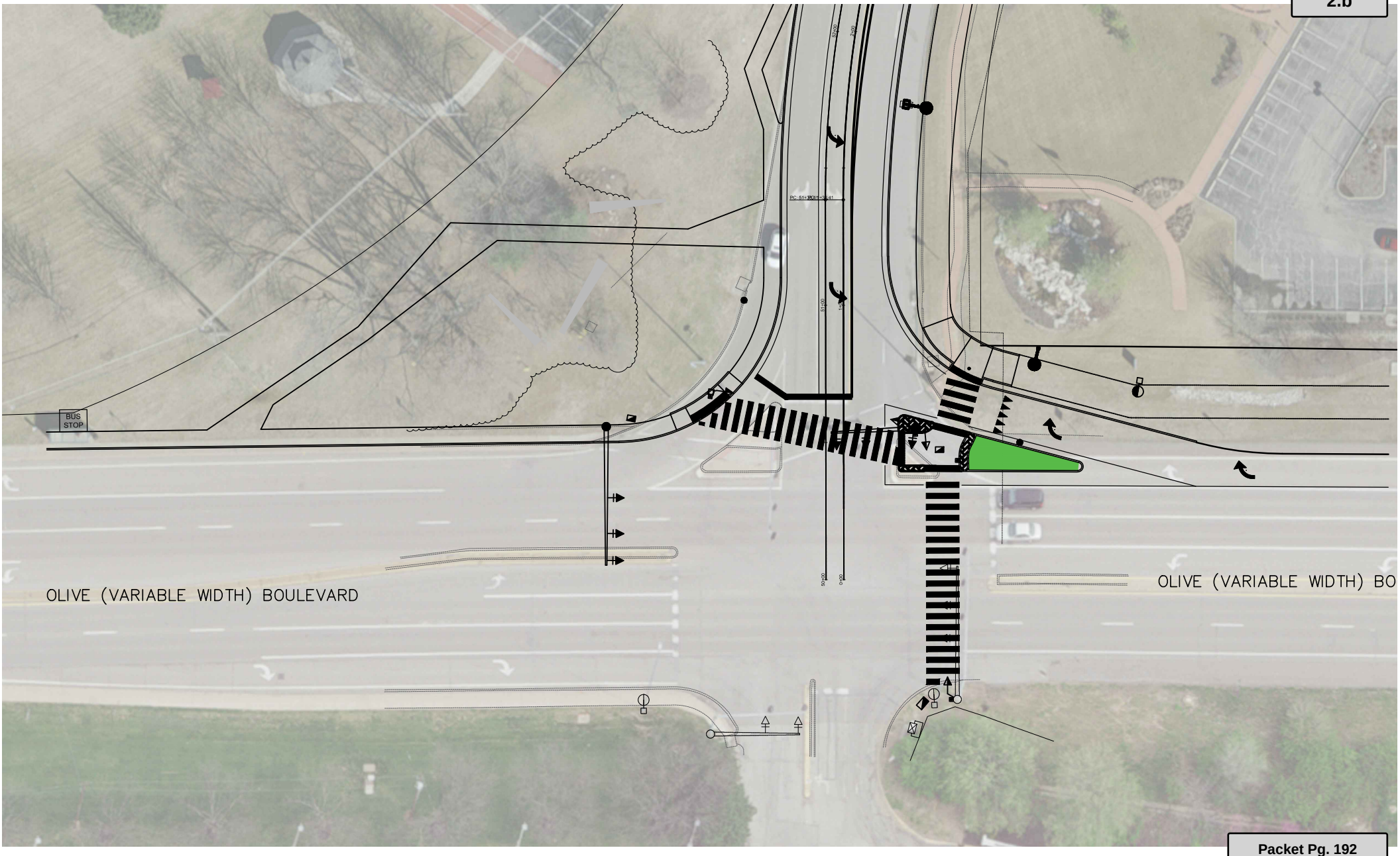
Preliminary Design Plan for Traffic Signals
The Preliminary Design Plan for Traffic Signals include 30% designs for three intersection locations on MoDOT right of way. The existing traffic signals on Olive at Old Olive West and Old Olive East will be modified to match the proposed design changes at those two intersections including lane use and alignment changes and proposed pedestrian crossings. A new traffic signal installation was designed for the intersection of Lindbergh and Old Olive. Future steps will be required to complete the design for review and permit by MoDOT. Coordination with some property owners may also be required for acquisition of right of way and or temporary/permanent easements related to the signal equipment, but the current phase of work was completed with the intent to avoid right of way impacts. It is highly likely that there will be overhead utility conflicts/clearance issues between the signal mast arms to be resolved with Ameren. Initial meetings with Ameren were held as part of this effort to minimize those conflicts where possible.

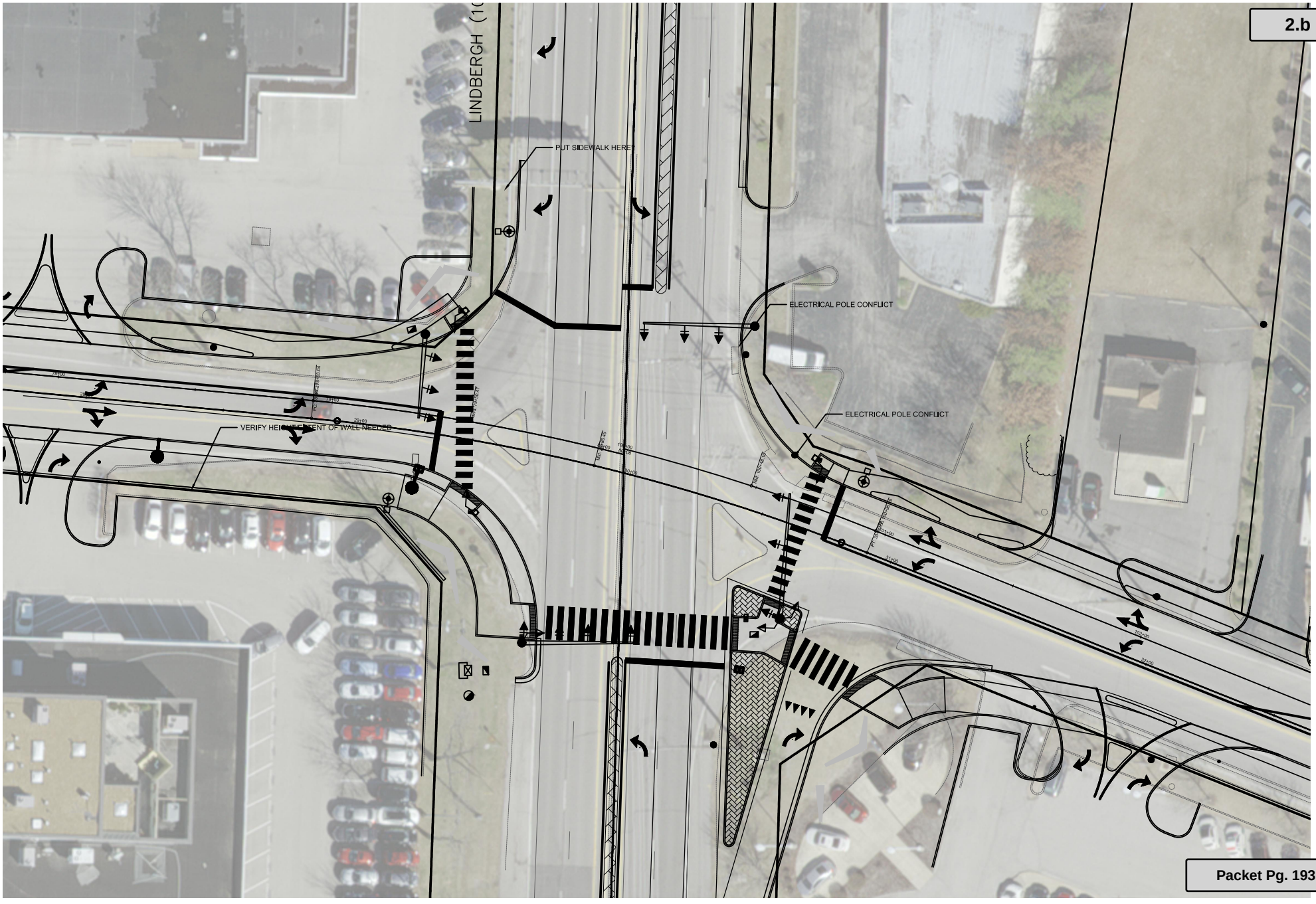
Cost Opinion
The Rough Engineers' Opinion of Cost for Traffic Signal Items reflects the level of detail known from the Preliminary Design Plan for Traffic Signals. The purpose was to inform the project budget on these elements. While the cost opinion is 100% complete for the 30% preliminary plan level, ongoing future adjustments will be necessary as the design is advanced to permit plan 100% level.

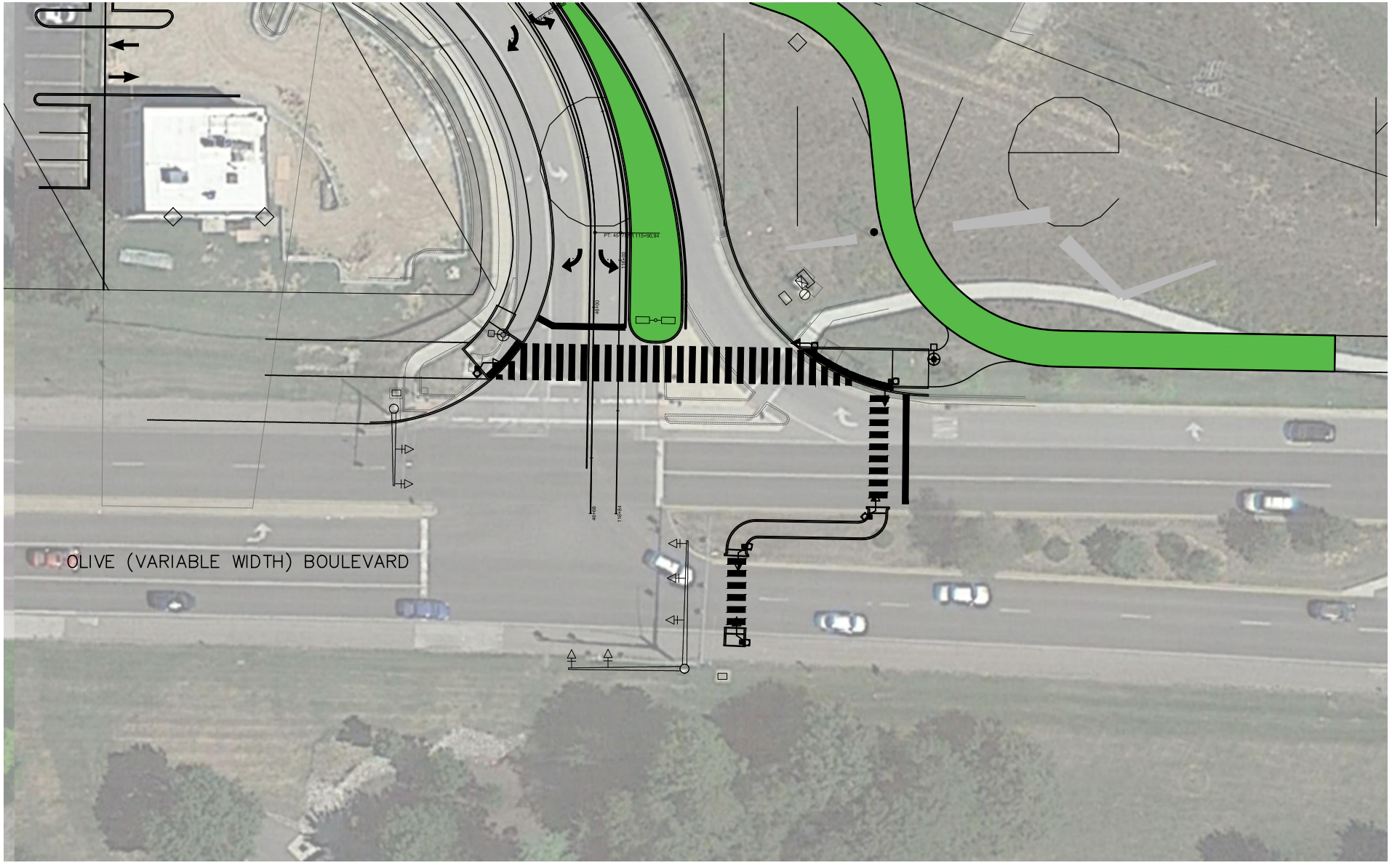
Attachments

The reports and drawings document the recommendations of the Design Team.:

- Traffic Analysis Technical Memorandum
- MoDOT Approval Letter for Traffic Analysis Technical Memorandum
- Traffic Signal Item Locations Map
- Preliminary Design Plan for Traffic Signals (30% Plans for Three Intersection Locations)


BUS STOP
OLIVE (VARIABLE WIDTH) BOULEVARD
OLIVE (VARIABLE WIDTH) BO


LINDBERGH (10
PUT SIDEWALK HERE?
ELECTRICAL POLE CONFLICT
ELECTRICAL POLE CONFLICT
VERIFY HEIGHT/EXTENT OF WALL NEEDED


OLIVE (VARIABLE WIDTH) BOULEVARD

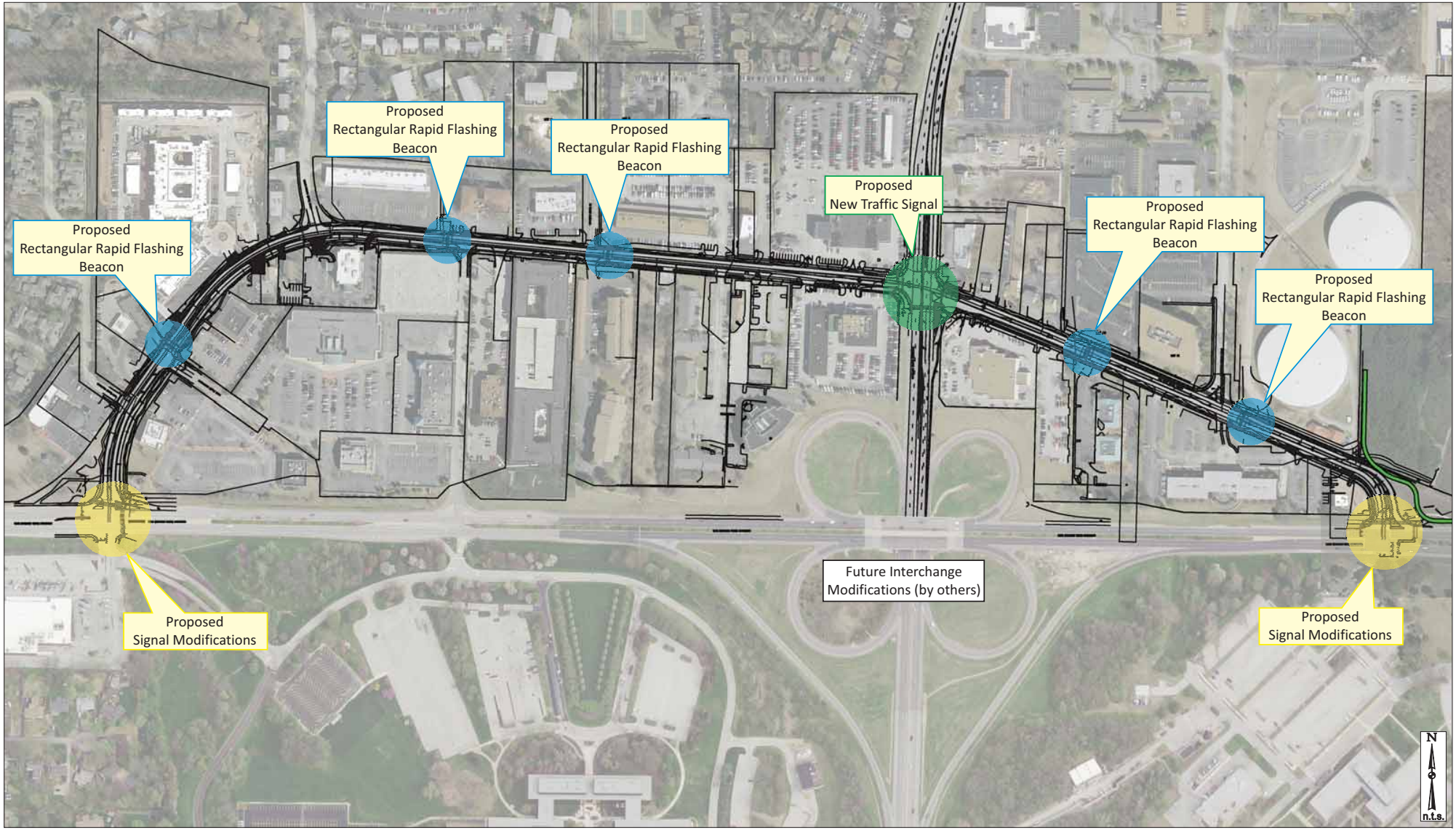
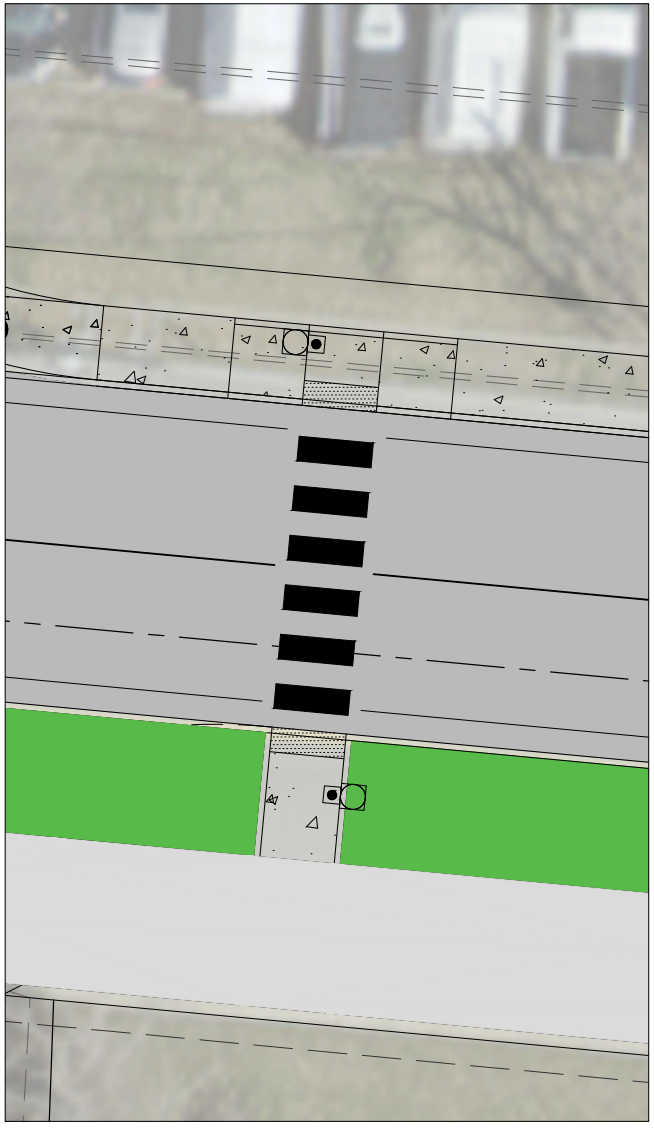
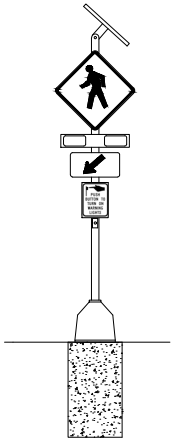


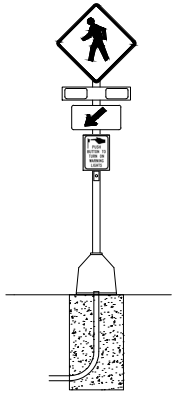
Figure A: Traffic Signal Elements

Job# 033-18
01/23/19





SOLAR POWERED
RECTANGULAR RAPID FLASH BEACON
(RRFB) PEDESTRIAN WARNING SIGNAL
ASSEMBLY DETAIL
(N.T.S.)



UTILITY POWERED
RECTANGULAR RAPID FLASH BEACON
(RRFB) PEDESTRIAN WARNING SIGNAL
ASSEMBLY DETAIL
(N.T.S.)

NOT APPROVED FOR CONSTRUCTION

CIVIL ENGINEER

DATE PREPARED

ROUTE	STATE
—	MO
DISTRICT	SHEET NO.
—	

COUNTY
—

JOB NO.
—

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AN

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TYPICAL RRFB LOCATION & DETAILS