

**AGENDA
JENKS CITY COUNCIL
SPECIAL MEETING
MONDAY, DECEMBER 9, 2019, 6:00 P.M.
THE HIVE, 115 S 1ST ST, JENKS, OKLAHOMA**

If you require special accommodations pursuant to the Americans with Disabilities Act, please notify the City Clerk's Office at (918)209-4960 or email agendas@jenksok.org.

I. CALL TO ORDER

II. ROLL CALL

III. BUSINESS

1. Discuss potential capital projects and available funding sources.

Documents:

[GO BOND SUMMARY.PDF](#)
[DRAFT CAPITAL PROJECTS COMMITTEE MINUTES 8-28-19.PDF](#)
[POTENTIAL COST TO HOMEOWNERS.PDF](#)
[CONCEPTUAL DESIGN REPORT SOUTH ELM IMPROVEMENTS.PDF](#)

IV. ADJOURNMENT

General Obligation Bonds

December 4, 2019

Mayor and all members of Council, below is a summary of the existing General Obligation (GO) Bonds that are outstanding.

- The City issued General Obligation Bonds Series 1999 at an original issue amount of \$3,700,000 with varying interest rates from 3.45% to 4.40% and a maturity date of January 2019. It cost \$200,000 annually to service this Bond.
 - Main and Elm Street Intersection Improvements - \$218,942
 - Widen Elm Street (Creek Turnpike to Main Street) \$764,995
 - 111th and Elm Intersection Improvements - \$217,078
 - A Street Improvements - \$462,887
 - General Street Improvements - \$713,098
 - Wastewater Treatment Plant Improvements - \$1,323,000
- The City issued General Obligation Bonds Series 2002 at an original issue amount of \$5,970,000 with varying interest rates from 0.125% to 10.0% and a maturity date of January 2022. It costs \$315,000 annually to service these Bonds. The Bonds funded the projects below.
 - Main Street and Nogales Intersection Improvements - \$173,600
 - 121st and Elm Street Intersection Improvements - \$288,400
 - Street Improvements to Lewis and 101st and B Street and Elm Street - \$700,000
 - General Street Improvements - \$498,000
 - Waste Water Treatment Plant Improvements - \$2,465,000
 - Construct and Equip South Fire Station - \$1,845,000
- The City issued General Obligation Bonds Series 2006 at an original issue amount of \$16,090,000 with varying interest rates from 4% to 5% and a maturity date of February 2026. It costs \$850,000 annually to service these Bonds. The Bonds funded the projects below.
 - Street Re-surfacing – \$1,350,000
 - K Place (Levee to Elm) – \$230,000
 - Main Street (Levee to Adams) - \$186,000
 - Elm Street Widening (111th to Turnpike) - \$8,000,000
 - Waste Water Treatment Plant Improvements (Engineering) - \$284,000
 - Waste Water Treatment Plant Improvements (Construction) - \$2,840,000
 - Manhole Rehabilitation - \$250,000
 - GIS Digital Mapping - \$115,000
 - Rehab Central Fire Station - \$300,000
 - City Hall Build-out - \$730,000
 - New Radio System - \$660,000
 - Fire Pumper and 1st Response Vehicles - \$550,000
 - South Fire Station Furnishings - \$125,000
 - Issuance Fees - \$470,000

General Obligation Bonds

December 4, 2019

- The City issued General Obligation Bonds Series 2010 at an original issue amount of \$5,200,000 with varying interest rates from 2.25% to 5.25% and a maturity date of June 2030. It costs \$275,000 annually to service these Bonds. The Bonds funded the projects below.
 - Main Street Widening (Elm Street to US Highway 75) - \$2,000,000
 - Elwood Avenue / Main Street Intersection - \$2,000,000
 - Main Street / Koa Street Traffic Signal - \$25,000
 - Elwood Avenue / 111th Street Intersection - \$500,000
 - Stormwater Design Improvements - \$500,000

- The City issued General Obligation Bonds Series 2014 at an original issue amount of \$13,760,000 with varying interest rates from 1.0% to 4.0% and a maturity date of February 2034. It costs \$725,000 annually to service these Bonds. The Bonds funded the projects below.
 - Main Street Widening (Elm Street to US 75) - \$1,800,000
 - Elwood Avenue / 111th Street Intersection Improvements - \$1,000,000
 - Elwood Avenue Widening (111th Street to Main Street) - \$1,000,000
 - Creek Turnpike / Elm Street Frontage Roads and Improved Access - \$7,500,000
 - Sanitary Sewer Infrastructure Improvements – \$2,000,000

MINUTES
CAPITAL PROJECTS COMMITTEE
WEDNESDAY, AUGUST 28, 2019, 11:30 A.M.
JENKS CITY HALL, WEST CONFERENCE ROOM, 211 NORTH ELM

The Agenda for the Capital Projects Committee was posted in City Hall and on the City's website at 8:40 a.m. on August 26, 2019. The meeting was called to order at 11:30 a.m. on the above date with Mayor Robert Lee presiding. A roll call vote of members was taken as follows:

Josh Wedman	Present
Gary Isbell	Present
Robert Lee	Present

City Manager Chris Shrout, City Attorney Teresa Nowlin, City Engineer Robert Carr, Staff Engineer Chris Robinson, Staff Engineer Kaci Hockett, Finance Director Robert Saucedo, and City Clerk Brittany Long were also in attendance.

Request to approve minutes of August 23, 2019. Josh Wedman made a motion to approve the minutes. Gary Isbell seconded the motion. Robert Lee agreed.

Business

1. Discuss potential capital projects and available funding sources.

City Manager Chris Shrout gave a brief overview of the previous meetings and discussions held regarding the various projects.

Information was presented that showed that the upgrades to Park West would be better to be funded through an alternate source. The Jenks Trojan Athletics (JTA) President has a five year plan for that facility so it would be better to have a little bit of flexibility with the funding.

The animal shelter is another project to be discussed. Various location options have been presented but the most viable one is next to the South Fire Station on 121st. This project could boost the bond package due to current cultural priorities. Charlotte Montgomery, 10612 S Fir Ave, stated that the animal shelter did not make the top 10 concerns of citizens that has been present at the various Comprehensive Plan meetings. Her suggestion is to pay a surrounding community a small fee to house the shelter animals until they can be adopted. Another concern is the way to fund the future operational expenses associated with a new facility. City Manager Chris Shrout stated that the vision for the City of Jenks is to obtain a no-kill status and staff it with a part time position. This would not cause a great increase in costs due to a new facility being more energy efficient and existing plans to add another employee to that department. The proposed location for the shelter is more prominent and would hopefully encourage the community to be involved. Keith Montgomery, 10612 S Fir Ave, stated that he has not heard of an actual need for a new shelter and he feels like we are solving an issue that is not present. City Manager Chris Shrout stated that he has heard that the citizens would like to see the facility be open to the public for easier adoption, obtain a no-kill status, and to have air conditioning to create a better living condition for the animals that are being held.

The next project presented was a new central fire station. The proposed building would be located in Central Park that way entering and exiting has a protected traffic control light. The current location would then be demolished, and a parking lot would be created.

A new community center is being proposed near 108th and Elm. Mr. Montgomery stated that he likes the idea of utilizing that property but questions the additional operation costs. There was some discussion over the seniors using a portion of building on a regular basis.

Elm Street widening from 111th to 131st was discussed next in regard to drainage and connecting the trail.

2. Recommend specific capital projects and funding to the full City Council and the Jenks Public Works Authority for consideration.

Recommendation to widen Elm Street to 5 lanes from 111th to 123rd, and two lanes with a turn lane from 123rd to 131st, for a cost of \$13 million.

Robert Lee made a motion to approve the recommendation. Wedman seconded the motion. Gary Isbell agreed. Motion carried.

Recommendation to construct a new fire station located in Central Park for a cost of \$3 million.

Gary Isbell made a motion to approve the recommendation. Josh Wedman seconded the motion. Robert Lee agreed. Motion carried.

Recommendation to construct a new 3,000 square foot animal shelter facility on 121st near the South Fire Station with outdoor area, for a cost of \$800,000.00.

Josh Wedman made a motion to approve the recommendation. Gary Isbell seconded the motion. Robert Lee agreed. Motion carried.

Recommendation to construct a new community center at 108th and Elm, for a cost of \$3 million.

Gary Isbell made a motion to approve the recommendation. Josh Wedman seconded the motion. Robert Lee agreed. Motion carried.

Recommendation to continue negotiations with JTA for Park West upgrades and express priority to Council to install turf to the field using alternate funding sources.

Gary Isbell made a motion to approve the recommendation. Josh Wedman seconded the motion. Robert Lee agreed. Motion carried.

Request to recommend a 20- or 25-year bond period for each project.

Josh Wedman made a motion to have a 20-year bond period for each project. Gary Isbell seconded the motion. Robert Lee agree. Motion carried.

Adjournment. Gary Isbell made a motion to adjourn. Josh Wedman seconded the motion. Robert Lee agreed.

The Capital Projects Committee adjourned at 1:28 p.m.

Robert Lee, **CHAIRMAN**

City of Jenks, Oklahoma

\$20,000,000 20 Year Debt

6/1/2020

Assessed Market Value	Assessed *	Homestead Exemption	Net Assessed Value	Cost Increase First Year	Monthly Cost First Year	Average Increase Over Life of Bonds	Average Monthly Cost
\$100,000	\$11,000	\$1,000	\$10,000	\$56.10	\$4.68	\$45.80	\$3.82
First Year Millage **			5.61				
Average Annual Millage			4.58				

\$20,000,000 20 Year Debt

8/1/2020

Assessed Market Value	Assessed *	Homestead Exemption	Net Assessed Value	Cost Increase First Year	Monthly Cost First Year	Average Increase Over Life of Bonds	Average Monthly Cost
\$100,000	\$11,000	\$1,000	\$10,000	\$74.00	\$6.17	\$45.80	\$3.82
First Year Millage **			7.4				
Average Annual Millage			4.58				

* County Assessment 11.00%

** Projected based on current net assessed valuation with no growth.

Based on current market conditions and subject to change.

Conceptual Design Report

The City of Jenks, Oklahoma

South Elm Street Improvements
from

West 111th Street South to West 131st Street South

Submitted by:

Marquardt Engineering, PLLC
5710 South Garnett Road
Tulsa, Ok. 74146
CA No. 6911 (PE), Expires 6/30/2017
Telephone: 918.704.8781

Mr. F. Robert Carr, Jr., P.E.
Public Works Director
City of Jenks
211 N. Elm Street
Jenks, Ok. 74037

Dec. 20, 2016

Re: Conceptual Design Report for South Elm Street Widening
From West 111th Street South to West 131st Street South in Jenks, OK

Mr. Carr,

Thank you for the opportunity to provide professional design services for this arterial street widening project in the city of Jenks, Oklahoma. Marquardt Engineering, PLLC is pleased to present this conceptual design report for your review. We are always available for your questions or comments regarding this report or any other concerns you may have involving this project.

Project Summary:

The City of Jenks, Oklahoma has contracted Marquardt Engineering, PLLC to prepare construction documents for improvements on South Elm Street. This conceptual design report will discuss various design alternates and ultimately recommend a design for proposed roadway improvements. An itemized cost estimate for the recommended alternates will be provided to assist with construction funding discussions.

South Elm Street is a major north/south arterial street that continues to carry a larger numbers of vehicles every year. New residential development in south Jenks is adding to the numbers. The City of Jenks is considering improvements to South Elm Street that provide additional traffic capacity and improved pedestrian access.

This project will address improvements to South Elm Street from W. 111th Street to W. 131st Street. There are three different existing roadway sections within the project. On the north side of 111th Street is a 5-lane roadway. Between 111th Street and 121st Street is a 3-lane facility. Between 121st Street and 131st Street is a 2-lane roadway. This project includes three signalized intersections and an intersection that will likely be signalized if the recommended alternate is constructed. Modifications will be required at two of the three existing signalized intersections.

Another aspect of this project is to evaluate the components of the storm sewer system that drains the intersection of W. 111th Street and South Elm Street. The system is composed of several large reinforced concrete boxes that discharge to an open channel approximately 1,200 feet north of the intersection. We have performed a regional detention study for this system with recommendations for additional storage capacity to convey a 100 year storm event under fully urbanized conditions.

Other items that will be considered include adding right turn lanes for southbound traffic at 111th Street and 121st Street, landscaped medians, and sidewalks along the west side of Elm Street from 111th Street to 121st Street.

Existing Conditions:

Existing roadway widths and composition vary throughout the two mile project limits. North of 111th Street is a 5-lane asphalt roadway with the outside southbound lane



converting to a right turn only (westbound) lane at the intersection. This section has curb and gutter with storm sewer inlets. Pedestrian access is provided by a short section of sidewalk on the west side of Elm Street that continues along the north side of 111th Street and a 10 foot wide pedestrian trail along the east side of Elm Street that terminates at the intersection of 111th Street.

The signalized intersection of 111th and Elm Street is composed of both asphalt and concrete pavements. The west leg of this intersection tapers to a 5-lane roadway with the outside eastbound lane converting to a right turn only (southbound) lane at Elm Street. This section has curb and gutter with storm sewer inlets. The east leg is a 3-lane roadway with curb and gutter along the north side of the roadway and an open ditch on the south side. This intersection experiences heavy congestion during peak hours, particularly in the southbound



direction during the evening peak flow. The change in roadway geometry from a 5-lane to a 3-lane, with the outside southbound lane converting to a right turn only lane, creates some confusion and increases last minute merges to the through lane, ultimately reducing the capacity through the intersection in this direction. Northbound traffic, congested

during the morning peak, clears the intersection somewhat quicker due to the additional northbound lane north of 111th Street. Eastbound traffic is heavy during the morning peak and most vehicles turn left to northbound Elm Street. There is a protected left turn phase that allows a large number of vehicles to clear during each cycle. Westbound traffic is minimal and typically clears the intersection in one signal cycle.



South of 111th Street is a 3-lane asphalt roadway that continues south to the improved concrete intersection at 121st Street. There is no curb present and storm water is conveyed through open ditches. There is a sidewalk along the east side of Elm Street from 111th Street to 112th Court. No other pedestrian facilities parallel the roadway within this mile segment.

The signalized intersection of 121st and Elm Street consists of concrete pavement for approximately 250 feet in all directions. The north leg of the intersection has a single through lane in each direction, an exclusive left turn lane and an exclusive right turn lane for southbound to westbound traffic. The south, west, and east legs are all 3-lane facilities with a single through lane in each direction and exclusive left turn lanes at the intersection. The entire intersection has curb and a closed storm sewer system. There are no pedestrian facilities at this intersection.





The existing pavement changes back to asphalt approximately 250 feet south of the 121st and Elm Street intersection. From here, the roadway tapers from 3-lanes to 2-lanes and continues south as a 2-lane roadway to the intersection of W. 131st Street. The tapered asphalt section has curb and

gutter without storm sewer inlets. The remainder of the mile has open ditches. There is a concrete sidewalk on the east side of Elm Street along the Elm Street frontage of the Yorktown subdivision. No other pedestrian facilities parallel the roadway within this mile segment.

The signalized intersection of 131st and Elm Street consists of asphalt pavement with open ditches. The intersection is widened to provide exclusive left turn lanes from all directions. The full 3-lane widening extends approximately 250 feet on the north leg of the intersection. This proposed project will terminate at that point.

Roadway Design:

In order to estimate costs for the alternate roadway configurations considered for this project, we must first determine the type of pavement construction necessary. This involves two aspects of the existing facility, pavement material condition and existing street geometry.

Marquardt Engineering contracted GFAC Engineering to perform the Geotechnical Engineering study for this project. Their initial investigation shows the existing asphalt pavement can be utilized in a new pavement section. The existing portland cement concrete pavements throughout the project are all in good condition as well. Based on this information, complete pavement reconstruction is not required. The complete Geotechnical Report will be submitted under separate cover.

Marquardt Engineering contracted Trout Land Surveying to perform a topographic field survey of this project. We produced a 3-D model of the existing corridor from the survey and obtained the existing ground profile along the centerline of the road. The vertical curves of the existing road were evaluated based upon criteria in the American Association of State Highway and Transportation Officials (AASHTO) geometric design guide. We looked at the 'K' value in particular which is the measure of the rate of change

in grade per length of the vertical curve. The 'K' value is used to measure several aspects of the roadway including safety, driver comfort, and drainage characteristics. All existing vertical curves within the project limits have 'K' values that exceed the minimum 'K' values established in the AASHTO design guide for a 40 mph design speed. We can use the existing pavement since no extensive profile revisions are required.

We believe this existing pavement surface should be utilized as a part of the new pavement section. All proposed widening will be full depth construction adjacent to the existing pavement. Existing asphalt pavements will be milled to remove surface deficiencies and make minor cross slope and profile corrections. A 3 inch asphalt overlay will be placed for the full width on asphalt sections. Portland cement concrete pavements will be full depth construction adjacent to the existing concrete sections. All construction cost estimates included in this report are based upon widening and overlaying of existing pavements. A detail showing the typical pavement sections described above is included in **Appendix A** of this report.

There are three existing roadway configurations within the project limits. We evaluated several new roadway designs to increase capacity throughout the corridor. The 5-lane section north of 111th Street continues north, under the Creek Turnpike, and terminates at Main Street. There are several large landscaped medians throughout which add to the aesthetics of the corridor. This section functions well with the exception of the southbound congestion previously discussed in this report. The only improvements anticipated north of 111th Street would be an exclusive right turn lane for southbound Elm to westbound 111th Street traffic if a 5-lane roadway is constructed south of 111th Street. The estimated cost to construct this right turn lane is **\$74,000**.

Change in geometry through the 111th Street intersection from a 5-lane to a 3-lane roadway is a major cause of the traffic congestion issues previously discussed. We considered extending a 5-lane roadway through the intersection then tapering to the existing 3-lane roadway. This would reduce congestion at the intersection but not provide the additional capacity south of the merge we believe is necessary due to anticipated development and growth in the area. A merge to a 4-lane facility would not produce a significant change. A 4-lane roadway creates a marginal increase in capacity compared to the existing 3-lane as left turning vehicles must occupy the inside through lane while waiting to complete the turning maneuver.

The third alternate we considered for this mile is extending a 5-lane roadway south of 111th Street to at least 121st Street. This will be a continuation of the Elm Street roadway section north of 111th Street and create a 5-lane corridor from 121st Street to downtown Jenks. This alternate will substantially reduce congestion in both directions at the 111th Street intersection and will provide the additional capacity required for anticipated growth in the area. There are several locations where the center left turn lane can be landscaped where adjacent development creates areas where no left turns are feasible.

We believe extending a 5-lane roadway south from 111th Street to at least 121st Street will ultimately be the desired alternate. Conceptual plans of this 5-lane configuration are included in **Appendix A** of this report. The estimated cost to construct a 64 foot wide 5-lane roadway from 111th Street to 121st Street is **\$3,748,000**. A southbound to westbound

right turn lane at 121st Street can be constructed for an additional **\$67,000**. A 5 foot wide concrete sidewalk along the west side of Elm Street can be constructed for an estimated **\$140,000**. Waterline relocation costs within this mile are estimated at **\$106,000**. Right-of-way acquisition required to construct these improvements is estimated to cost **\$640,000**. A detailed cost estimate for these items is included in **Appendix B** of this report.

The geometry of the intersection at 121st Street must be revised if a 5-lane roadway is constructed from 111th Street. We could terminate the 5-lane roadway at 121st Street and convert the outside southbound lane to a right turn only lane. The south leg of the intersection would remain a 3-lane roadway. Experience with this scenario at the intersection of 111th and Elm Street has shown that this geometry does not function well.

Next we considered continuing a 5-lane roadway south through the 121st Street intersection. The 5-lane roadway will merge to the existing 2-lane or a new 3-lane roadway south of the commercial development along the east side of Elm Street, approximately 1,100 feet south of 121st Street. This will increase capacity through the intersection substantially. This scenario will create a mid-block merge instead of dropping a southbound through lane at the intersection. Using a 45:1 taper will create a 550 foot long merge from 5 lanes to 3 lanes. This length allows merging vehicles to maintain speed and complete the maneuver without having a major effect on the through capacity. We believe extending a 5-lane roadway through the 121st Street intersection will produce the additional capacity desired while also reducing the number of accidents anticipated from dropping the southbound outside lane.

At the south end of the 5-lane section we will have a tapered roadway that merges to either the existing 2-lane or a new 3-lane roadway. There are several issues that make a merge to the existing 2-lane section undesirable. Residential developments along the east side of Elm Street produce a large number of left turns for southbound traffic during the evening peak. These turning vehicles will occupy the only through lane in this direction creating a stop condition for through traffic shortly after merging from 5-lanes. This will effectively reduce capacity along the mile in the southbound direction and would likely cause more accidents than a merge from 5-lanes to 3-lanes.

A 3-lane roadway appears to be the best fit south of this merging situation. It will allow left turning vehicles to enter the center turn lane leaving the outside lane open for through traffic creating a smooth transition from the 5-lane roadway. A 3-lane will increase capacity in both directions for this mile of the project and reduce the number of traffic accidents anticipated with a southbound merge to 2-lanes.

Conceptual plans of this 5-lane to 3-lane configuration are included in **Appendix A** of this report. The cost to construct a 64 foot wide 5-lane roadway for 1,100 feet, which then tapers to a 3-lane roadway that continues to the widened 131st and Elm Street intersection, is estimated at **\$3,035,000**. Waterline relocations costs within this mile are estimated at **\$82,000**. Right-of-way acquisition required to construct these improvements is estimated to cost **\$1,335,750**. A detailed cost estimate for these items is included in **Appendix C** of this report.

Pedestrian Access:

Another key component of this project is to improve pedestrian access along S. Elm Street within the two mile corridor. The City of Jenks previously contracted Marquardt Engineering, PLLC to provide construction documents for the extension of the pedestrian



trail along the east side of Elm Street from 111th Street to 121st Street. The conceptual design of the trail extension was approved by Jenks City Council on December 7, 2015. This mile segment of trail will be constructed with the roadway project, however, the design and construction costs will continue to be funded by Vision 2025 surplus funds. The estimated cost to construct this mile of trail with the recommended alternates is **\$687,000**. A detailed cost

estimate for the trail items is included in **Appendix D** of this report.

Our current project will consider extending the trail for an additional ½ mile south of 121st Street along the east side of Elm Street. This extension will tie to the existing concrete sidewalk near the north boundary of the Yorktown subdivision. Extending the trail to this point will provide pedestrian access from the furthest residential development within the project limits.

The proposed pedestrian trail extension will connect the adjacent residential areas to miles of additional trails throughout the area. Residents as far south as the Yorktown subdivision can safely walk or ride a bike from their home to downtown Jenks for a parade, pay their water bill, or multiple other locations throughout the region.



The construction cost for this south ½ mile of trail will be funded with the roadway improvements. The estimated cost to construct this ½ mile of trail is **\$108,000**.

Traffic Signals:

Construction of a 5-lane roadway from 111th Street to south of 121st Street will require traffic signal modifications at both of these signalized intersections. Adding exclusive right turn lanes for southbound to westbound traffic at both intersections requires the relocation of the signal controller cabinets as well.

Marquardt Engineering contracted Traffic Engineering Consultants, Inc. (TEC) to prepare traffic signal construction documents with Mr. Jon Eshelman, P.E. as the project manager for TEC. After reviewing plans of the recommended roadway improvements, he stated that both locations will require upgrades. These include a new relocated signal controller, new wiring throughout, pedestrian push buttons, pedestrian signal heads, and longer mast arms with additional traffic signal heads. The estimated cost to construct traffic signal modifications at 111th and Elm Street is **\$180,000**, the estimated cost to construct traffic signal modifications at 121st and Elm Street is **\$170,000**.

We then discussed the need to signalize 116th and Elm Street intersection. It is a three-way or 'T' intersection with 116th Street on the east side of Elm Street. This mid-mile street serves a large area of mainly residential development. Jenks First Baptist Church is located on the southeast corner of the intersection. Public Service Company of Oklahoma has a large electric power generation facility located on the Arkansas River at the east end of 116th Street. The typical traffic pattern is westbound to northbound during the morning peak then southbound to eastbound during the evening peak. There are additional traffic volume surges on 116th Street generated by activities at the Jenks First Baptist Church.

There will be the new pedestrian trail constructed along the east side of Elm Street. The trail will cross 116th Street and will include a connection to the existing Churchill Park pedestrian trail which ends approximately 80 feet west of Elm Street. A crossing on Elm Street will be required to connect these two trails. In the conceptual design report for the Elm Street trail project, we recommended solar powered Rectangular Rapid Flash Beacon (RRFB) signs and associated pavement markings to identify the trail crossing the existing 3-lane Elm Street. Pedestrians crossing a future 5-lane Elm Street will require more time to cross leaving them exposed to traffic longer.

We believe this project should include a new traffic signal at 116th and Elm Street. The signal will provide protected left turn for southbound Elm Street and westbound 116th Street. It will also allow signalized pedestrian trail crossings at both 116th Street and Elm Street. The signal will function much like the existing traffic signal at 106th and Elm Street with priority given to the busier north/south arterial. Traffic signals on Elm Street are coordinated (sequenced) from B Street to 111th Street. With this signal in place the city could extend the Elm Street coordinated signal system south to 121st Street. The estimated cost to construct a new traffic signal at 116th and Elm Street is **\$140,000**.

Landscaped Medians:



The existing 5-lane roadway north of 111th Street has landscaped medians at several locations. There is an opportunity to continue that theme along the proposed 5-lane roadway south of 111th Street. There are several locations where the center left turn lane can be landscaped as adjacent development allows. We believe there is several hundred feet of the center turn lane that can be landscaped for an estimated **\$75,000**.

Regional Detention Study:

The scope of this project includes a regional detention study for the watershed that drains to the intersection of 111th and Elm Street. The intent of the study is to determine the quantity of storm water that must be stored, if any, so capacity of the existing storm sewer system will not be exceeded under fully urbanized conditions during a 100-year storm.

The existing storm sewer system is composed of several large reinforced concrete boxes that discharge to an open channel approximately 1,200 feet north of the intersection. It is anticipated that land near current commercial developments may change from low intensity residential use to medium intensity commercial use in the near future. Higher intensity uses increase the amount of storm water runoff that could exceed the capacity of the existing storm sewer system.

Marquardt Engineering contracted Swift Water Resources Engineering to complete the drainage study. Mr. Mark Swift, P.E. performed the study and prepared the report. When the study began a single detention pond design was considered. The best location available for the pond is on the southwest corner of 111th and Elm Street. There is a large tract of undeveloped land along the drainage channel. This location is directly upstream from the existing 11.5' x 4.7' RCB that diagonals under the intersection.

During design, we were notified that a drainage easement was recently dedicated to the city as a part of the Yale Cleaners development. The easement contains an existing pond that can be used for detention. The study was revised to consider a two pond system. The intent is to maximize storage in the upstream pond, within the recently dedicated drainage easement, in order to minimize the size of the downstream pond located on property that must be acquired. The study shows that a two pond detention system with 49 acre-feet of storage will allow the existing storm sewer system to convey a 100-year storm under fully urbanized conditions. The complete report prepared by Swift Water Resources is included in **Appendix E** of this report.

Utilities:

Multiple public and private utilities are present throughout the project limits. An initial utility coordination meeting was held on December 13, 2016 to discuss this project and any anticipated impacts the proposed construction would have on these facilities.

The City of Jenks has water lines along the east right-of-way with multiple crossing to the west for both miles. We believe the proposed project will require approximately 1,800 lf of waterline relocations. All sanitary sewer lines are either deep enough or far enough away from construction that we do not anticipate any relocations. The total estimated cost to relocate water lines throughout the project is **\$188,000**.

Creek County Rural Water District No. 2 has a waterline along the south side of 111th street turning south at Elm Street. The line continues south along the west right-of-way eventually turning east along the north right-of-way of 116th Street. At the utility coordination meeting Creek County RWD # 2 stated an estimated 2,300 linear feet of relocation would be required. The majority of this quantity is due to their waterline being below the proposed sidewalk on the west side of Elm Street, the remainder is due to proposed excavation and finished grades above their lines.

Public Service Company of Oklahoma has distribution facilities along both the east and west sides of Elm Street from 111th Street to 121st Street. Their distribution lines continue along the west side of Elm Street from 121st Street to 131st Street. Cox Communications and AT&T's overhead facilities are attached to PSO's poles. We anticipate relocation of these facilities throughout the project at the utility owner's expense. PSO also operates transmission lines that cross Elm Street just south of 116th Street and another just north of 119th Street. The proposed project will not impact the transmission facilities or the PSO substation just north of 116th Street on the west side of Elm Street.

East Central Oklahoma Electric Company (ECOEC) has distribution lines along the east side of Elm Street from 121st to 131st Street. Cox Communications and AT&T's overhead facilities are attached to ECOEC's poles. These lines will be relocated, at the utility owner's expense, due to conflicts with proposed construction.

Cox Communications, AT&T, and Oklahoma Natural Gas have underground facilities that parallel and cross Elm Street throughout the project limits. We don't know the full extent of relocations at this early stage of design but we do believe that the costs for the relocations will be the utility owner's responsibility.

Magellan Midstream operates two petroleum pipelines that cross Elm Street between 117th and 118th Street. Explorer Pipeline has a 24" high pressure line that crosses here as well. Phillips 66, Kinder Morgan, and Enable Midstream operate petroleum pipelines that cross near 12600 block of Elm Street. We have requested depth information from these pipelines operators. A representative from Phillips 66 attended the utility meeting and stated their facility is from 10' to 12' deep at the crossing. Marquardt Engineering is in the process of contacting the remaining pipeline owners/operators to obtain depth information for their facilities.

Executive Summary & Engineer's Recommendation:

This project addresses improvements to South Elm Street from W. 111th Street South to W. 131st Street South in Jenks, Oklahoma. The primary goals of this project are to provide a roadway with the capacity to carry anticipated future traffic volumes at an acceptable level of service, increase pedestrian access throughout the corridor, and study the existing storm sewer system at the intersection of 111th and Elm Street to determine if it has the capacity to convey a 100-year storm with a fully urbanized drainage basin.

The City of Jenks contracted Marquardt Engineering, PLLC to prepare construction plans and documents for these improvements. This complex project requires the specialized services of several sub consultants. Trout Land Survey, LLC performed the topographic field survey and established existing right-of-ways and easements from filed land records. GFAC Engineering, Inc. prepared the Geotechnical Study to determine pavement and subgrade thicknesses for new pavements and overlays. Swift Water Resources Engineering, LLC performed a drainage study for the 111th and Elm Street drainage system. Traffic Engineering Consultants, Inc. will design traffic signal modifications. BKL, Inc. will assist with structural design on reinforce concrete box extensions, and finally, Terra Acquisition Services will act as the Right of Way Agent to assist the City of Jenks with anticipated acquisitions.

In this conceptual design report we discussed the following: existing conditions, pavement composition, lane configuration, pedestrian access, traffic signalization, landscaped medians, regional drainage study, and finally existing utilities. Below is a summary of our discussions with recommendations and estimated construction costs.

- **Existing conditions:**

- Elm Street is a 5-lane asphalt roadway north of 111th Street with the southbound outside lane ending at 111th Street. Signalized intersection at 111th Street has exclusive left turn lanes southbound, eastbound and northbound, has both asphalt and concrete pavements. Elm Street is a 3-lane asphalt roadway south of 111th Street continuing as a 3-lane through the improved intersection of 121st Street. Signalized intersection at 121st Street has exclusive left turn lanes and a single through lane in all directions. This intersection has concrete pavement for 250' in all directions. Approximately 250' south of 121st Street, the asphalt pavement of Elm Street tapers from 3-lanes to 2-lanes and continues south as a 2-lane asphalt roadway to the improved intersection at 131st Street.

- **Pavement composition:**

- There are two alternates for pavement construction evaluated for this project. The most cost effective solution is to construct full depth widening adjacent to the existing pavement. The second alternate would be complete pavement reconstruction.

- We evaluated several aspects of the existing pavement to determine if it could be utilized.
 - The geotechnical study suggests that both asphalt and concrete pavements are structurally sound and can be used as a part of the new roadway. Asphalt pavements will be milled to remove surface defects and to allow for minor cross slope and profile corrections. The milled surface will receive a 3-inch asphalt overlay.
 - Our field survey and subsequent surface model allowed us to evaluate certain geometric parameters of the existing roadway to determine that it did, indeed, meet the design criteria established by the nationally recognized AASHTO Manual for Geometric Design of Streets and Highways.
- Complete pavement reconstruction is intuitively more expensive and has a greater impact on motorists during the construction phase.
- Since our investigation shows that the existing pavement can be utilized we recommend full depth widening adjacent to existing pavements. Existing asphalt pavements will be milled and the entire width will receive a 3-inch overlay. Concrete pavement widening will be constructed full depth with the longitudinal joint tied to the existing concrete pavement. Roadway construction cost estimates included in this report are based on these pavement sections. A detail showing the typical pavement sections described above is included in **Appendix A** of this report.

- **Lane Configuration:**

- North of 111th Street
 - Elm Street is a 5-lane roadway north of 111th Street. There are several landscaped medians between 111th Street and the Creek Turnpike that create a parkway theme along this corridor.
 - The southbound outside through lane on Elm Street converts to a right turn only lane at 111th Street. This creates some confusion and increases last minute merges to the through lane, ultimately reducing the capacity of the intersection.
 - This section functions well with the exception of southbound congestion at 111th Street during the evening peak. The only improvements we recommend north of 111th Street is an exclusive right turn lane for southbound Elm to westbound 111th Street traffic. The estimated cost to construct this right turn lane is **\$74,000** and is included in the itemized cost estimate in **Appendix B** of this report.

- 111th Street to 121st Street
 - Elm Street is an existing 3-lane roadway for this mile
 - We considered several alternate lane configurations for this section that will increase roadway capacity:
 - Extend a 5-lane roadway south through the intersection that would merge to the existing 3-lane roadway. This will increase the capacity of the 111th Street intersection but will not provide any additional capacity south of the merge.
 - Extend a 5-lane roadway south through the intersection that would merge to a widened 4-lane roadway. This will also increase the capacity of the 111th Street intersection but will not produce a significant change south of the merge. A 4-lane roadway creates a marginal increase in capacity compared to the existing 3-lane as left turning vehicles must occupy the inside through lane while waiting to complete the turning maneuver.
 - Extend a 5-lane roadway south from 111th Street to 121st Street. This alternate will substantially reduce congestion in both directions at the 111th Street intersection and will provide the additional capacity desired for anticipated growth in the area.
 - We recommend constructing a 5-lane roadway from 111th Street to 121st Street. This will create a 5-lane corridor from 121st Street to downtown Jenks. There are several locations where the center left turn lane can be landscaped extending the parkway concept used on Elm Street to the north. Conceptual plans of this 5-lane configuration are included in **Appendix A**. The estimated cost to construct a 64 foot wide 5-lane roadway from 111th Street to 121st Street is **\$3,748,000**. We also recommend a southbound to westbound right turn lane at 121st Street that can be constructed for an additional **\$67,000**. A detailed cost estimate for these items is included in **Appendix B** of this report.
- 121st and Elm Street Intersection
 - All approaches of the existing intersection have a single through lane in each direction and exclusive left turn lanes. There is a right turn lane for southbound Elm Street to westbound 121st Street traffic on the north leg.

- We evaluated alternate lane configurations for this intersection considering our recommendation to extend a 5-lane roadway from 111th Street:
 - End the 5-lane roadway at 121st Street and convert the outside southbound through lane to a right turn only lane. The south leg of the intersection would remain a 3-lane roadway. Experience with this scenario at 111th and Elm Street has shown that this geometry does not function well.
 - Continue the 5-lane roadway through the 121st Street intersection that merges to the existing 2-lane or a widened 3-lane roadway south of the commercial development along the east side of Elm Street. This scenario will create a mid-block merge. Using 45:1 tapers allows merging vehicles to maintain speed and complete the maneuver without having a major impact on through traffic.
 - We recommend continuing a 5-lane roadway through the 121st Street intersection to the south end of the existing commercial development on the east side of Elm Street.
- 121st Street to 131st Street
- We evaluated alternate lane configurations for this section considering our recommendation to extend a 5-lane roadway through 121st Street:
 - Taper the roadway at the south end of the 5-lane section to the existing 2-lane roadway. Developments along the east side of Elm Street produce a large number of left turns for southbound traffic. These turning vehicles will occupy the only through lane in this direction creating a stop condition for through traffic shortly after merging from 5-lanes.
 - Taper Elm Street at the south end of the 5-lane roadway to a widened 3-lane roadway. This allows left turning vehicles to enter the center turn lane leaving the outside lane open for through traffic.
 - We recommend constructing a 5-lane roadway to approximately 1,100 feet south of 121st Street that tapers to a 3-lane roadway for the remainder of the mile section. Conceptual plans of this configuration are included in **Appendix A**. The estimated cost to construct this section is **\$3,035,000**. An itemized cost estimate for this alternate is included in **Appendix C** of this report.

- **Pedestrian Access:**

- 111th Street to 121st Street

- The City of Jenks previously contracted Marquardt Engineering, PLLC to design an extension of the pedestrian trail along the east side of Elm Street from 111th to 121st Street. The conceptual design was approved by Jenks City Council on December 7, 2015. This segment of trail will be funded by Vision 2025 surplus funds. The estimated cost to construct this mile of trail with the recommended alternates is **\$687,000**. We recommend this trail extension be constructed with the roadway improvements. The only exception to the approved plan will be a signalized pedestrian crossing of Elm Street at 116th Street in-lieu of the flashing beacons previously recommended. A detailed cost estimate is included in **Appendix D** of this report.
 - We evaluated a 5 foot wide concrete sidewalk along the west side of Elm Street. Additional sidewalk will be constructed at all four corners of the 121st Street intersection. It will have ADA compliant protected pedestrian crossings of Elm Street at 111th Street, 116th Street and 121st Street. This sidewalk will provide safe pedestrian travel for residents along the west side of Elm Street. We recommend constructing this sidewalk at an estimated cost of **\$140,000**.

- 121st Street to 131st Street

- We evaluated extending the pedestrian trail and additional ½ mile along the east side of Elm Street south of 121st Street and connecting to the existing concrete sidewalk at the north boundary of the Yorktown subdivision. This extension will provide pedestrian access to all residential developments along this mile section of Elm Street. Residents as far south as the Yorktown subdivision can safely walk or ride a bike from their home to downtown Jenks without entering the roadway other than at signalized crossings. We recommend constructing this additional ½ mile of 10 foot wide pedestrian trail for an estimated cost of **\$108,000**. A detail showing the proposed trail section is included in **Appendix A** of this report.
 - There are no residential developments along the west side of Elm Street in this mile. Due to historic use of the property we do not anticipate any residential development in the near future. We believe there is no need to construct a sidewalk along the west side of Elm Street from 121st to 131st Street at this time.

- **Traffic Signals:**

- 111th and Elm Street Intersection

- The existing traffic signal will require extensive modifications to service the widened intersection. The signal controller will be relocated to the northeast corner of the intersection. The existing controller is located on the northwest corner of the intersection which will have limited area and steeper slopes after the construction of the southbound right turn lane. We recommend constructing the required signal modifications at this intersection for an estimated cost of **\$180,000**.

- 116th and Elm Street Intersection

- We evaluated a new traffic signal at 116th and Elm Street. The signal will provide protected left turns for southbound Elm Street to eastbound 116th Street and westbound 116th Street to southbound Elm Street. It will provide signalized pedestrian trail crossings at both 116th Street and Elm Street. The signal will function much like the existing traffic signal at 106th and Elm Street with priority given to the busier north/south arterial. With this signal in place the city could extend the Elm Street coordinated signal system south to 121st Street. We recommend constructing a new traffic signal at 116th and Elm Street for an estimated cost of **\$140,000**.

- 121st and Elm Street Intersection

- The existing traffic signal will require extensive modifications to service the widened intersection. The existing signal controller is located on the northeast corner of the intersection and will be relocated further west to clear right turn lane construction. Additional modifications include new wiring, pedestrian signal heads, pedestrian push buttons, and longer mast arms with additional signal heads for the northbound and southbound signal poles. We recommend constructing the required signal modifications at this intersection for an estimated cost of **\$170,000**.

- 131st and Elm Street Intersection

- This proposed project will not affect the existing traffic signal at this intersection.

- **Landscaped Medians:**

- There are several locations throughout the 5-lane roadway section where left turns are not feasible due to adjacent land development. These areas are prime locations to construct landscaped medians and continue the parkway theme established on Elm Street from the Creek Turnpike to 111th Street. We recommend constructing landscaped medians at several locations within the 5-lane roadway section. The estimated cost to construct 300 feet of landscaped median is **\$75,000**.

- **Regional Drainage Study:**

- The scope of this project includes a regional drainage study of the watershed that drains to the existing storm sewer system at the intersection of 111th and Elm Street. The intent of the study is to determine the quantity of storm water that must be stored, if any, so the capacity of the existing storm sewer system will not be exceeded under fully urbanized conditions during a 100-year storm. Anticipated development along arterial streets within the drainage basin are changing from low intensity residential use to medium intensity commercial use and there is a concern that the existing storm sewer will be not be able to convey the runoff caused by more intense development.
- The study was performed by Mr. Mark Swift, P.E. with Swift Water Resources Engineering. His results show that 49 acre-feet of storage will be required to allow the existing storm sewer system to convey a 100-year storm with a fully urbanized watershed. His model of a two pond system includes a modified pond on the drainage easement recently dedicated with the Yale Cleaners development. The second pond will be located on the southwest corner of 111th and Elm Street just upstream of the 11' x 4.7' RCB that diagonals northeast under the intersection. Approximately two acres of privately owned land must be acquired by the city to construct this second pond.
- The scope of our contract does not include the design of these ponds, it only includes the study to determine if storage actually is necessary. The estimated cost to construct the proposed two pond detention facility, provided for budgeting purposes, is **\$950,500**. This includes excavations, embankments, outlet structures, erosion control, and right-of-way acquisitions.
- We feel this is an opportunity for the city to create an amenity for its citizens. The area around the ponds could include a trail or sidewalk with benches, area lighting, and a culvert type bridge over the stream. Additional landscaping such as rock walls, fountains, and playground equipment would supplement the appeal of this area.

- We recommend the construction of a two pond detention facility to allow the existing storm sewer system to convey the 100-year storm under fully urbanized conditions. Additional professional design services will be required to complete the pond layouts. The city should consider additional improvements adjacent to these ponds to create a multi-use facility.
- The complete hydrology report is included in **Appendix E** of this report.

• **Utilities:**

- There are multiple utilities scattered throughout the project. Cox Communications, Oklahoma Natural Gas, Public Service Company of Oklahoma, and East Central Oklahoma Electric Company are located within existing street right-of-way. It is anticipated that any relocation costs will be the responsibility of the utility owner.
- Creek County Rural Water District has facilities along the west side of Elm Street from 111th Street to 116th Street. They estimated 2,300 linear feet of relocation due to proposed improvements. The City of Jenks may be responsible for the estimated **\$172,500** of relocation costs for this work.
- AT&T has facilities throughout the project, some of which are within exclusive easements. AT&T did not send a representative to our initial utility coordination meeting so the extent of relocations and cost responsibility have not been determined at this time.
- There are six petroleum pipelines that cross Elm Street within the project limits. Magellan Midstream operates two of these pipelines. The remainder are owned by Kinder Morgan, Phillips 66, Enable Midstream, and Explorer Pipeline. Phillips 66 sent a representative to the utility coordination meeting who stated that their facility is 10 to 12 feet deep at the crossing. No other pipeline owners were present at the utility meeting.
- Due to limited information at this time, we feel it's prudent to include some anticipated costs to the city for petroleum pipeline relocations. For estimating purposes we have included an additional **\$500,000** to the construction cost estimate for pipeline work.
- We believe that multiple utility relocations will be required to construct the proposed improvements. The majority of these will be relocated at no cost to the city. At this early stage of the project, we estimate the cost to the city for relocations not covered by franchise agreements to be **\$672,500**.

We recommend constructing the improvements describe above for this 2-mile long arterial street widening project. The total estimated cost to construct these improvements, including right-of-way acquisitions, water line relocations, anticipated utility relocation costs, construction inspection, and a 15% contingency is **\$12,836,885.16**. This total includes **\$687,000** for the pedestrian trail extension that will be paid for with Vision 2025 surplus funds.

Attachments:

Conceptual design plans showing recommended alternates are included in Appendix A of this report. An itemized estimate of construction costs for the 5-lane roadway from 111th to 121st Street is included in Appendix B. An itemized estimate of construction costs for a 5-lane roadway merging to a 3-lane roadway from 121st to 131st Street is included in Appendix C of this report. An itemized cost estimate for the pedestrian trail extension from 111th to 121st Street is included in Appendix D. The complete hydrology report prepared during the regional drainage study is included in Appendix E of this report. Recent traffic counts provided by city staff are included in Appendix F. Photographs taken at the project site are included in Appendix G of this report.

Thank you again for the opportunity to provide this conceptual design report. Please feel free to contact us if you have any questions or comments, or if you need any additional information regarding this report.

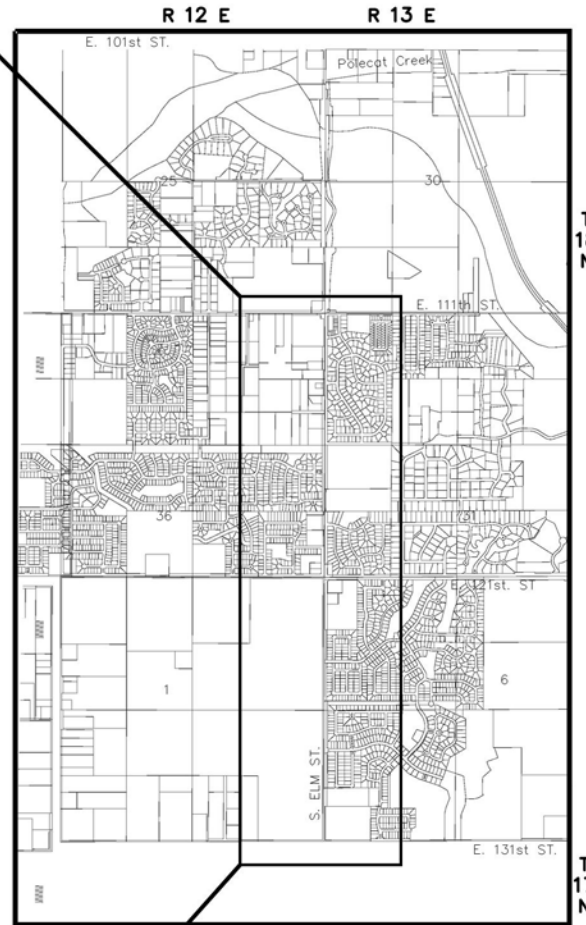
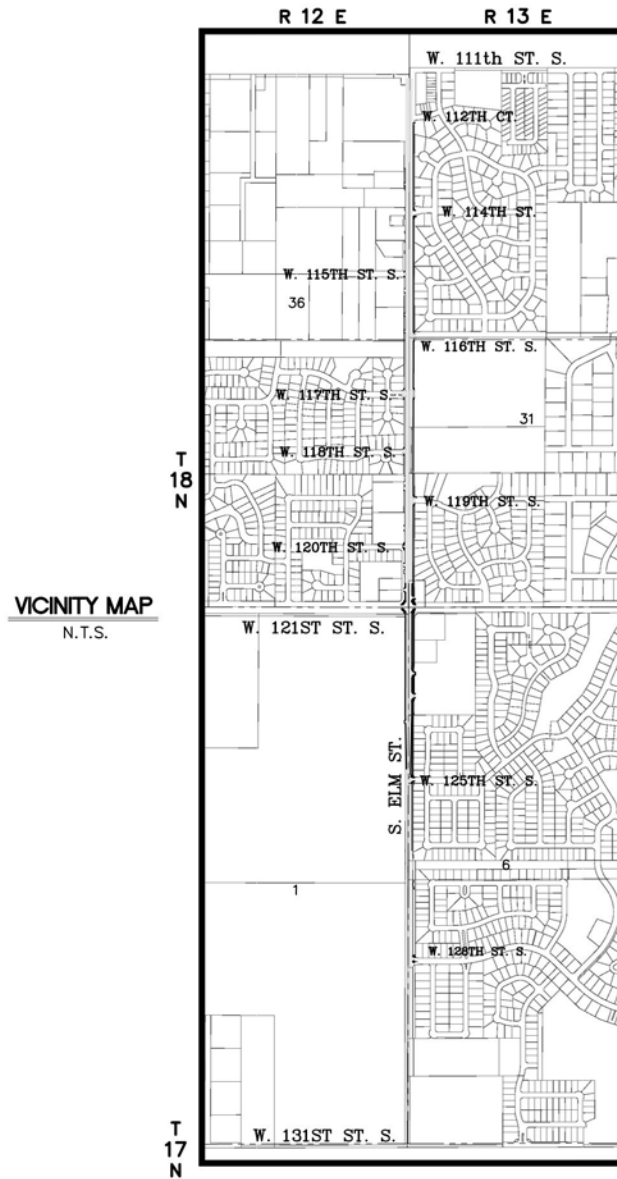
Sincerely,

Keith M. Marquardt, P.E.
Project Manager
Marquardt Engineering, PLLC

CITY OF JENKS, OKLAHOMA

CONCEPTUAL PLANS FOR STREET IMPROVEMENTS

S. ELM ST. FROM W. 131ST ST. SOUTH TO W. 111TH ST. SOUTH



PREPARED BY:



Marquardt Engineering, PLLC

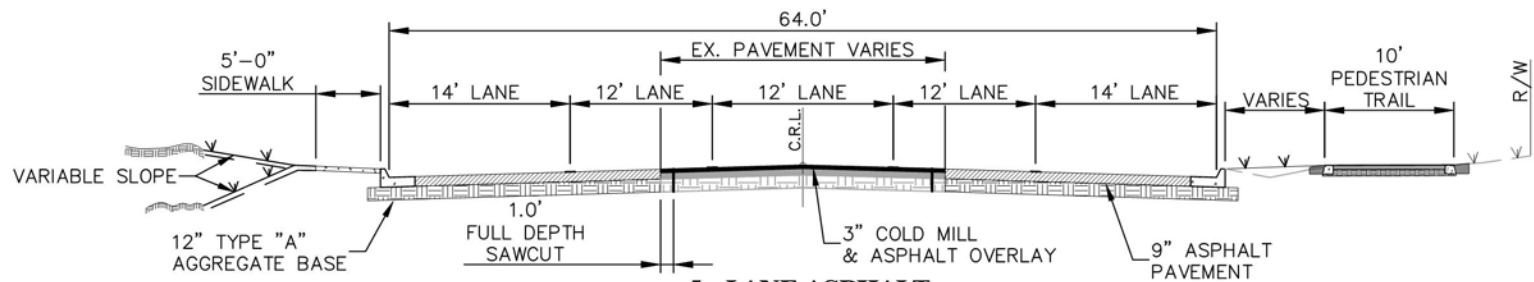
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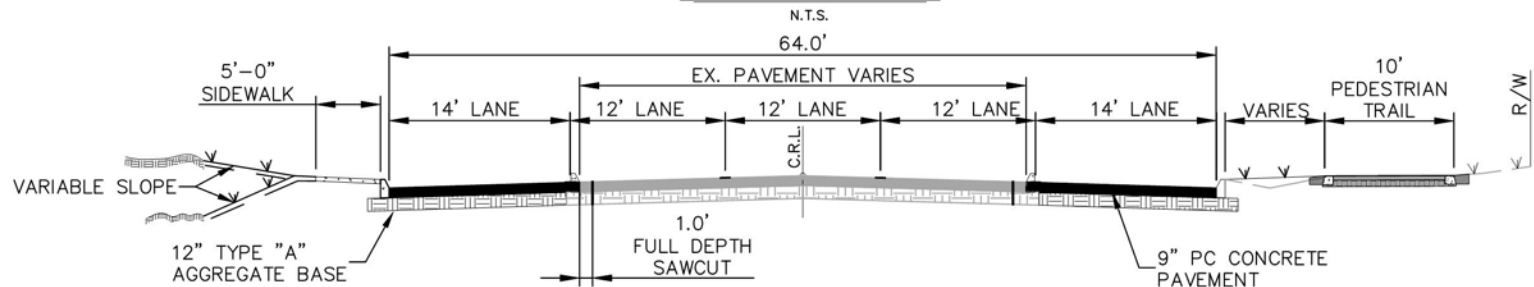
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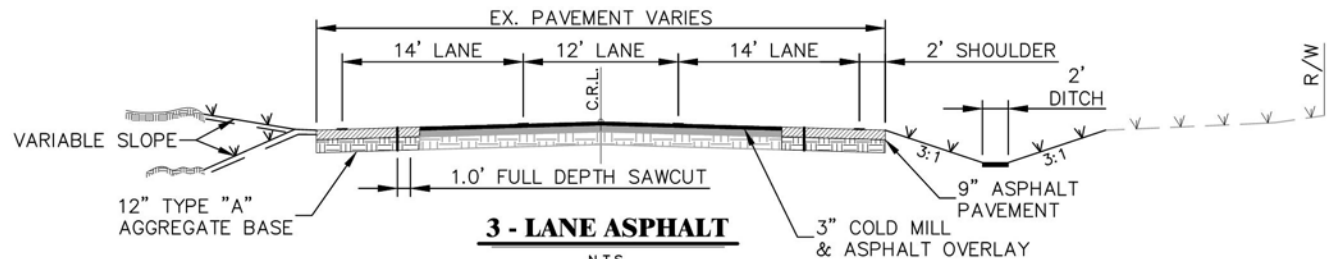
keith.marquardt@gmail.com



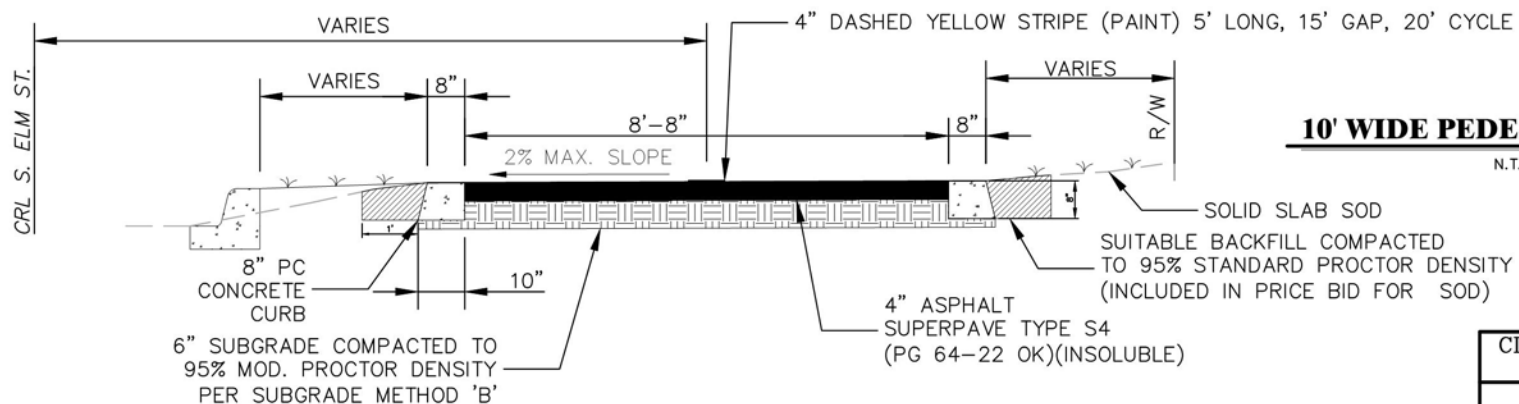
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5 - LANE PC CONCRETE w/CURB & GUTTER



3 - LANE ASPHALT

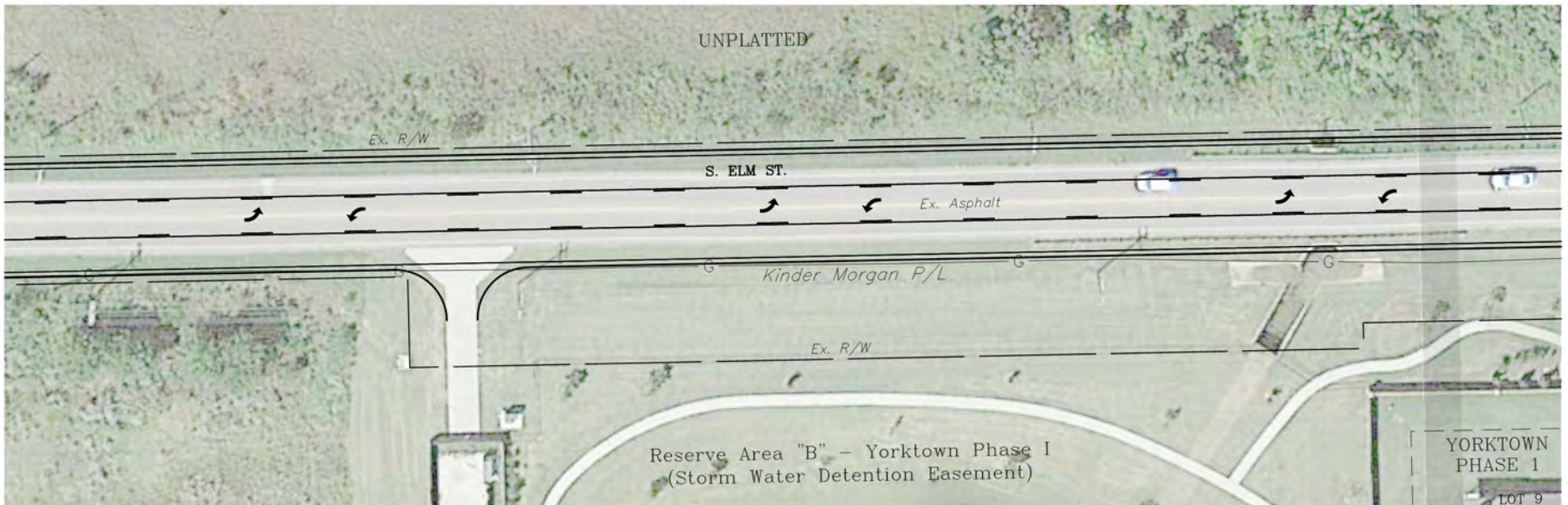


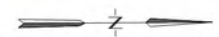
10' WIDE PEDESTRIAN TRAIL

N.T.S.

CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS

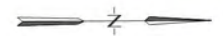
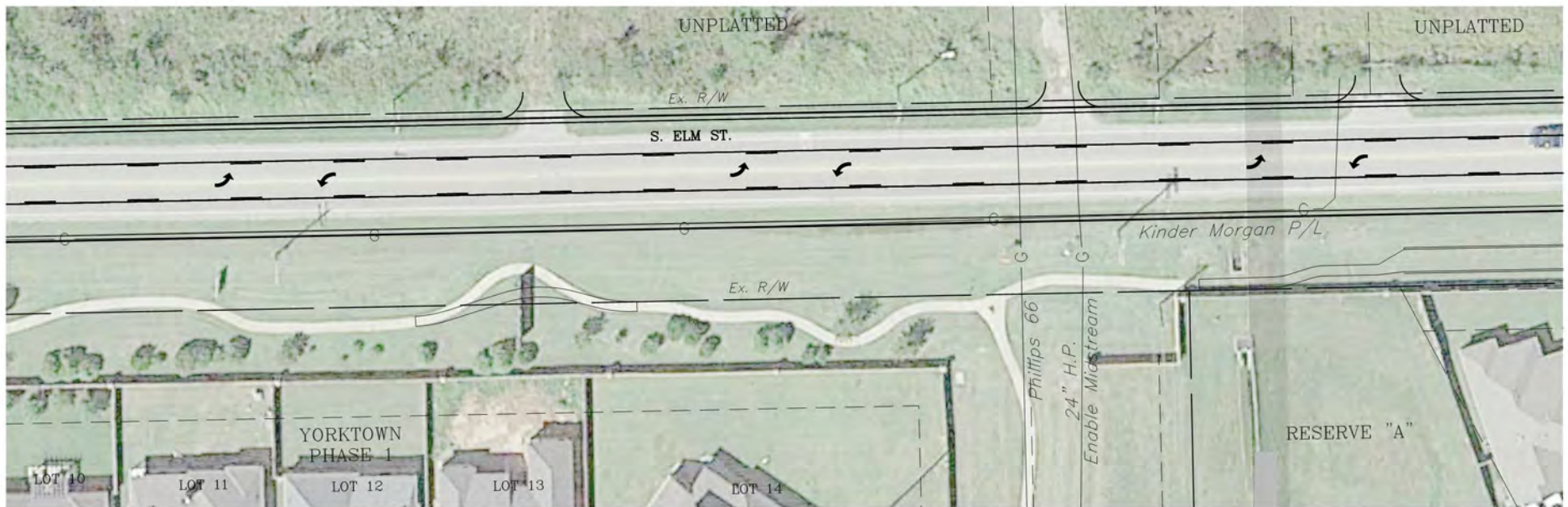
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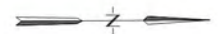
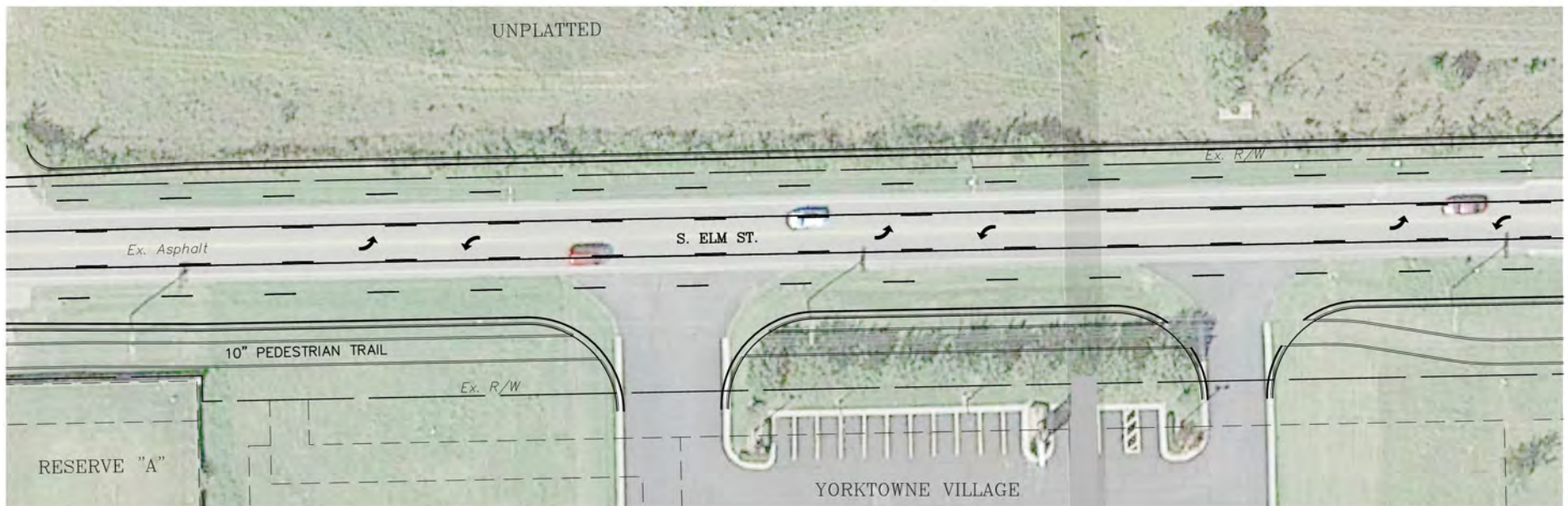
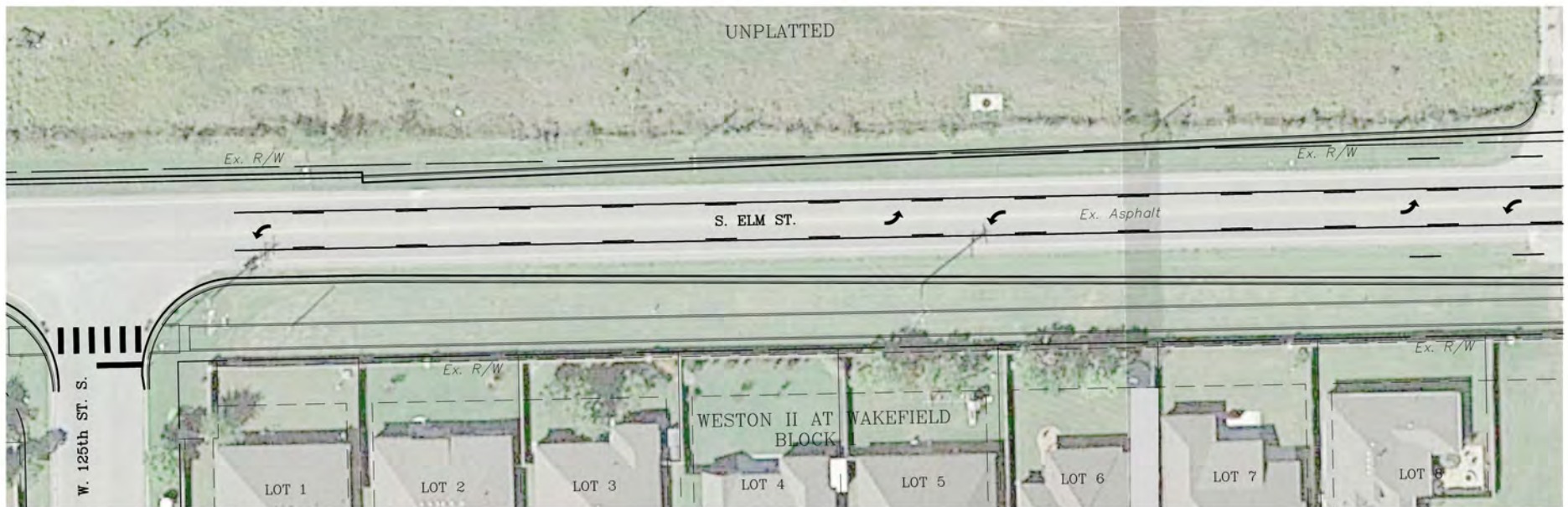
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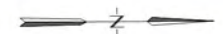
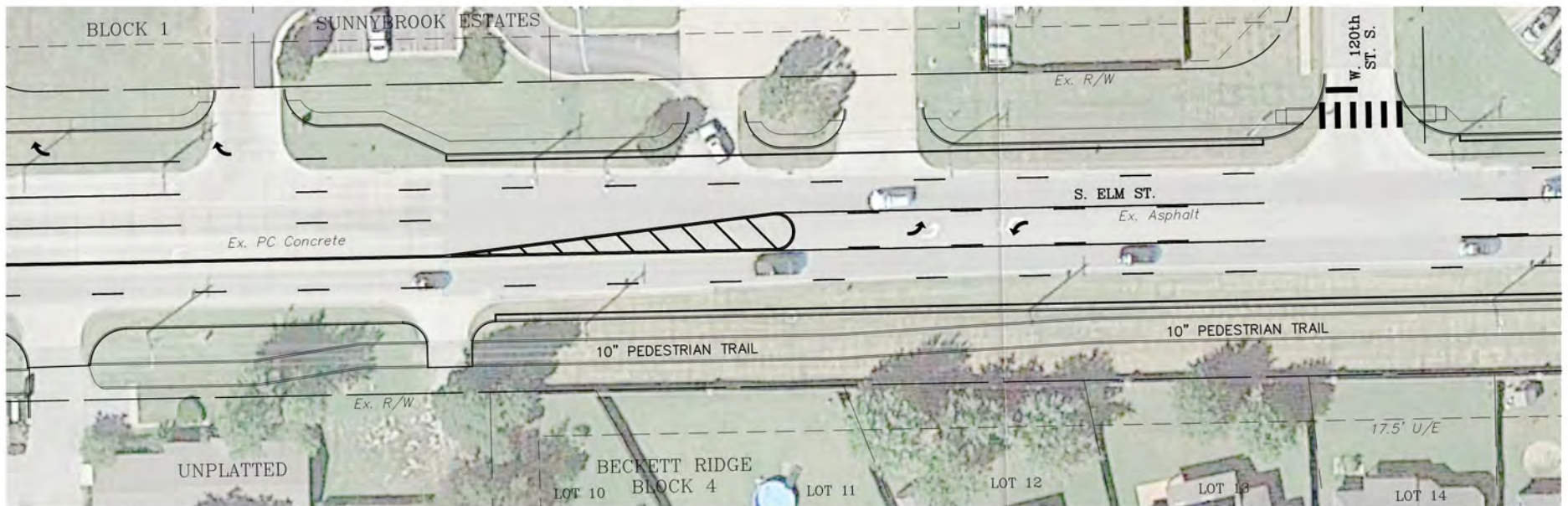
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S. ELM ST. IMPROVEMENTS (3)

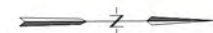
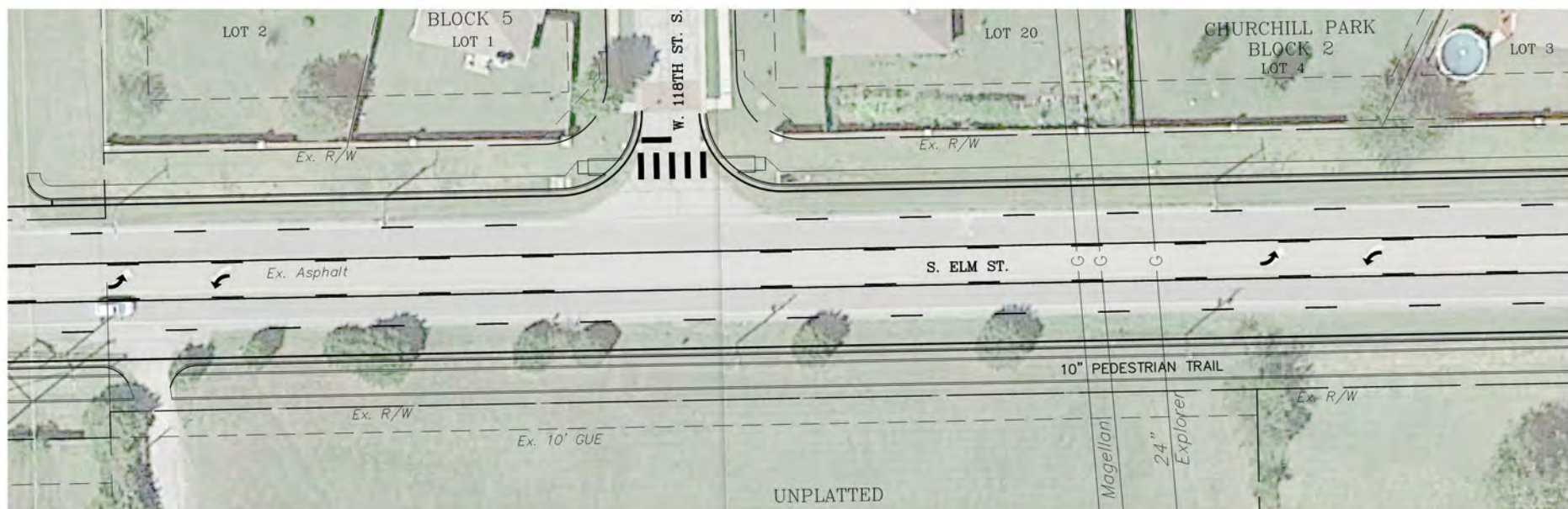
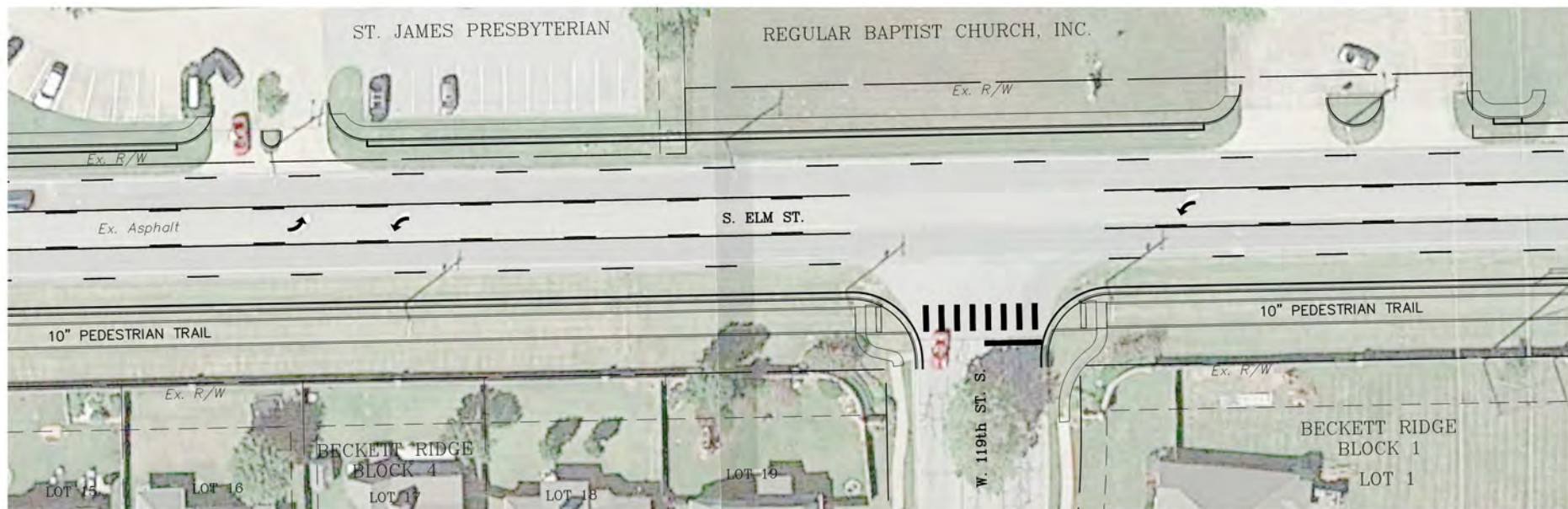
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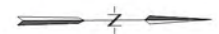
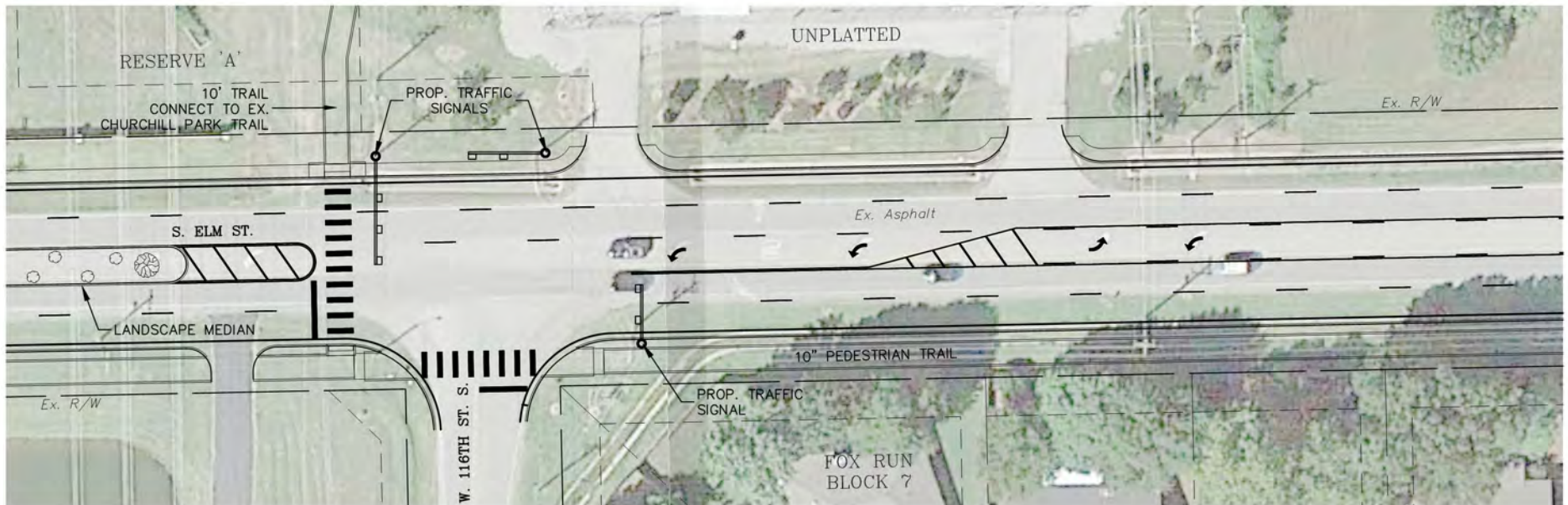
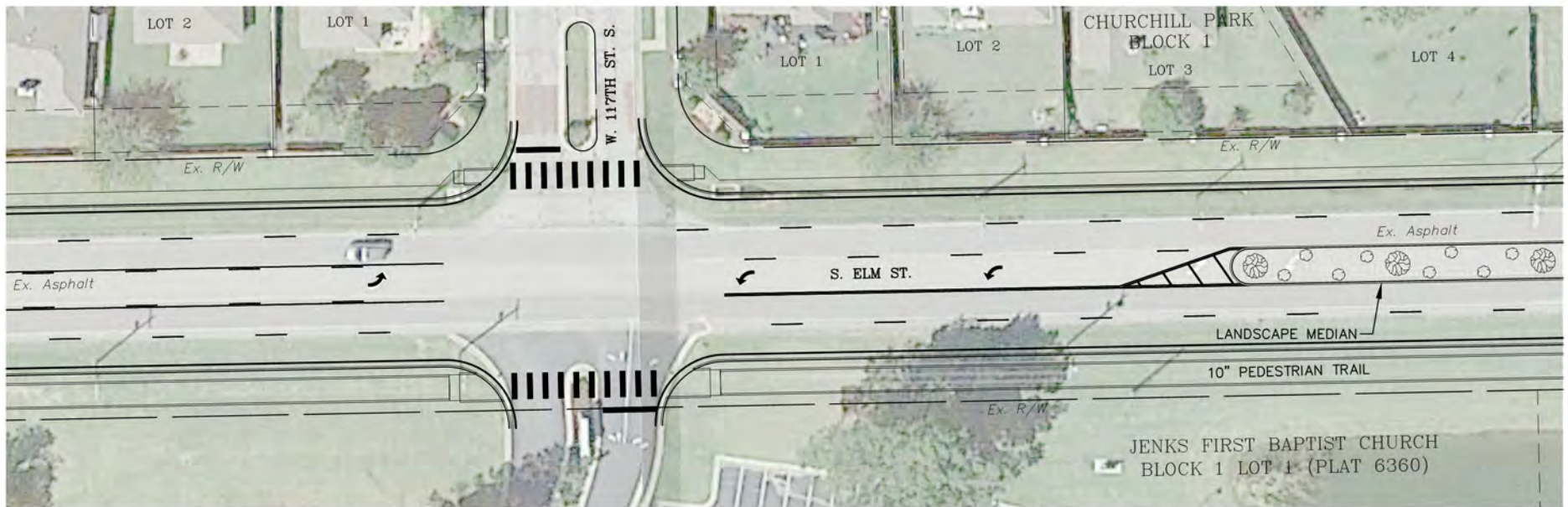
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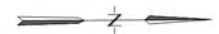
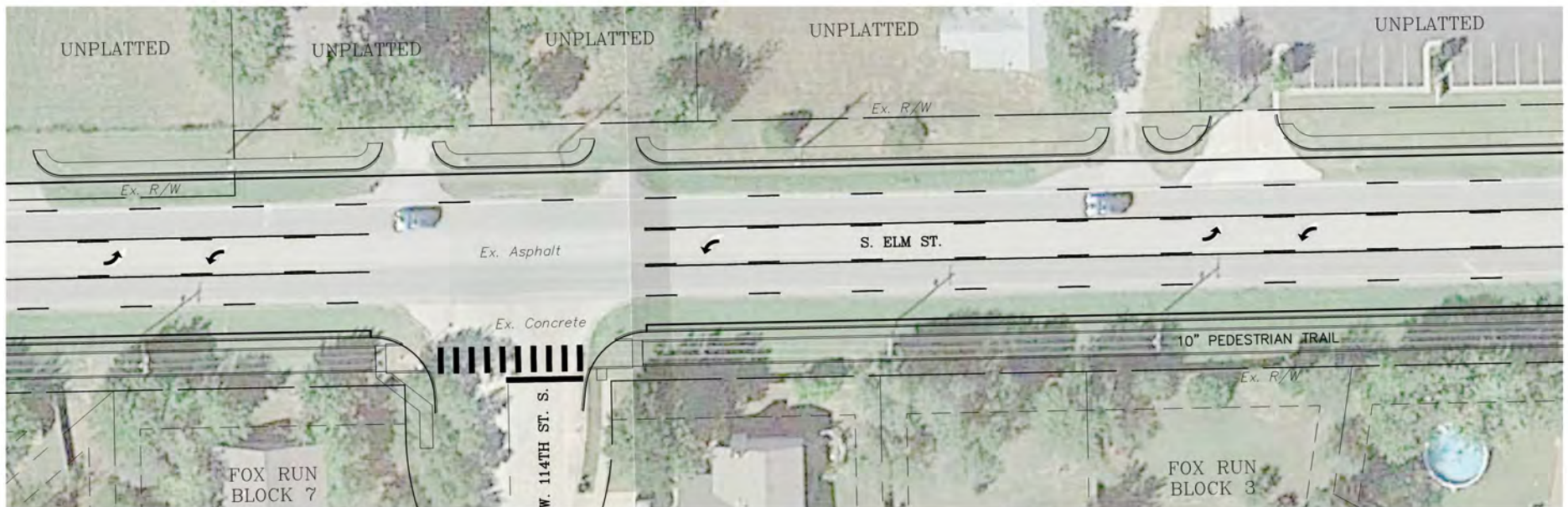
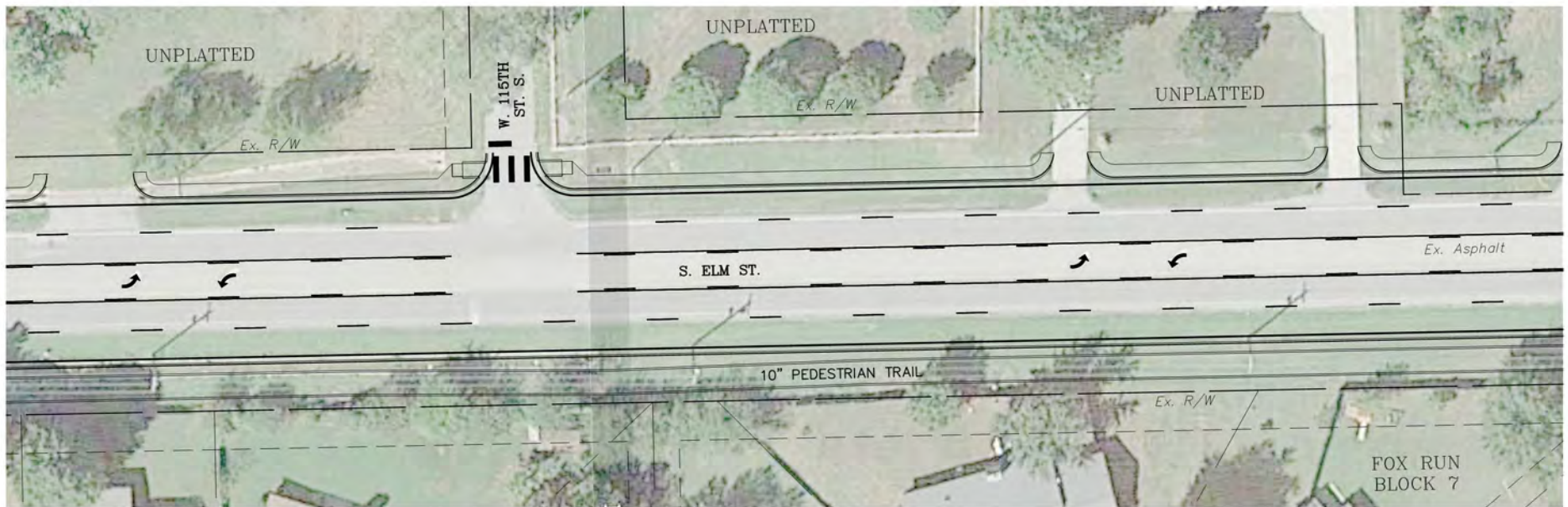
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CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (6)

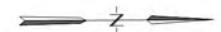
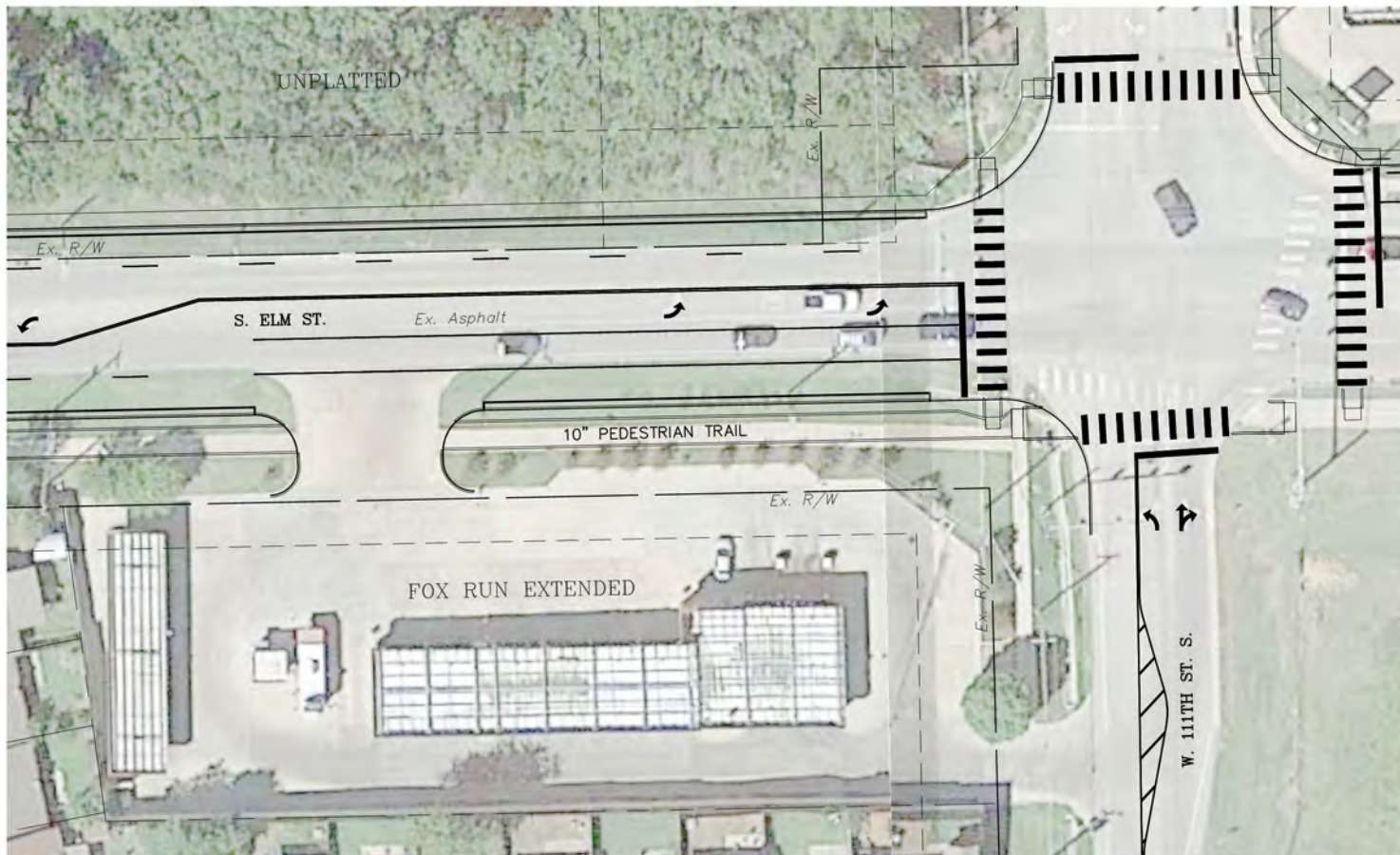
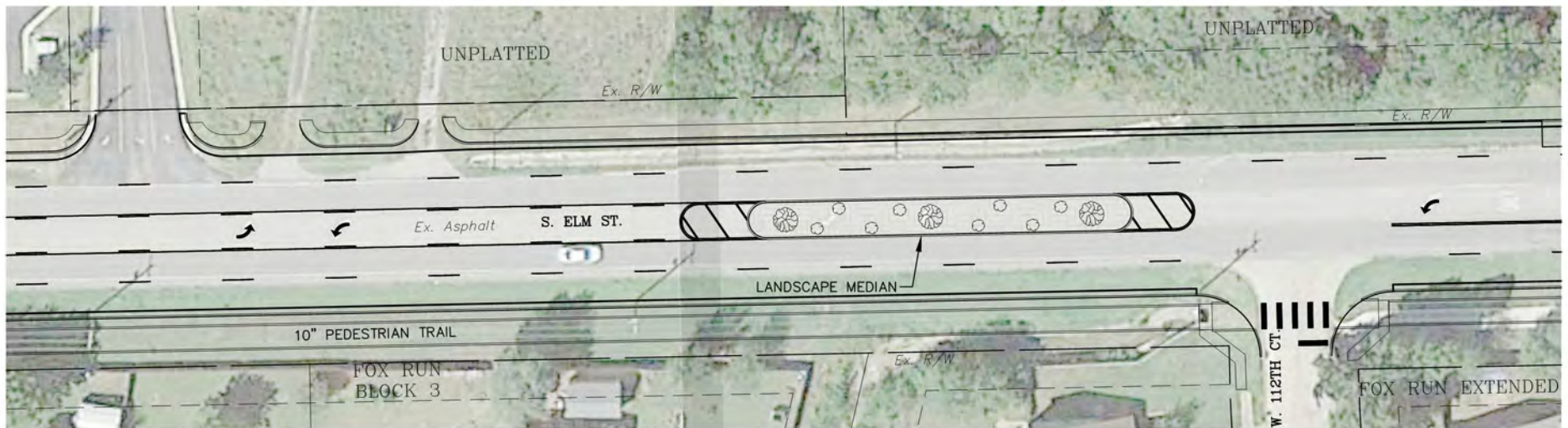
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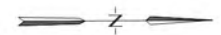




CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (8)







PRELIMINARY DESIGN COST ESTIMATE (Revised)

City of Jenks - Elm Street Improvements (131st Street to 111th Street)

Prepared by: Marquardt Engineering, PLLC

Date: Oct. 25, 2019

SUMMARY OF PAY QUANTITIES**BASE BID ITEMS**

ITEM	SPEC. NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
1	201(A)	CLEARING AND GRUBBING	LS	1	\$100,000.00	\$100,000.00
2	202(A)	UNCLASSIFIED EXCAVATION	CY	19,259	\$15.00	\$288,885.00
3	205(A)	TYPE A SALVAGED TOPSOIL	LS	1	\$25,000.00	\$25,000.00
4	220	SWPPP DOCUMENTATION AND MANAGEMENT	LS	1	\$5,000.00	\$5,000.00
5	221(C)	TEMPORARY SILT FENCE	LF	8,000	\$3.00	\$24,000.00
6	230(A)	SOLID SLAB SODDING	SY	23,499	\$3.50	\$82,246.11
7	303(A)	AGGREGATE BASE TYPE A	CY	11,405	\$42.00	\$479,005.33
8	310(B)	SUBGRADE METHOD 'B'	SY	32,249	\$2.00	\$64,497.33
9	325	SEPARATOR FABRIC	SY	40,311	\$1.50	\$60,466.25
10	409(A)	FABRIC REINFORCEMENT	SY	35,960	\$5.00	\$179,799.44
11	411(B)	SUPERPAVE, TYPE S3 -PG (64-22) OK	TON	8,033	\$80.00	\$642,629.12
12	411(C)	SUPERPAVE, TYPE S4 -PG (64-22) OK (INSOLUBLE)	TON	1,484	\$85.00	\$126,173.70
13	411(C)	SUPERPAVE, TYPE S4 -PG (70-28) OK (INSOLUBLE)	TON	10,024	\$90.00	\$902,188.56
14	412	COLD MILLING PAVEMENT (3" DEEP)	SY	35,960	\$3.00	\$107,879.67
15	414(B)	DOWEL JOINTED PCC PAVEMENT (PLACEMENT)	SY	2,058	\$30.00	\$61,726.67
16	414(G)	PC CONCRETE FOR PAVEMENT	CY	514	\$150.00	\$77,158.33
17	509(A)	CLASS AA CONCRETE	CY	374	\$650.00	\$243,100.00
18	509(C)	CLASS A CONCRETE, SMALL STRUCTURES	CY	3	\$1,500.00	\$4,245.00
19	511(A)	REINFORCING STEEL	LBS	55,806	\$1.25	\$69,757.50
20	609(A)	CONCRETE CURB, (8" BARRIER)	LF	1,043	\$15.00	\$15,645.00
21	609(A)	CONCRETE CURB, (8" SPECIAL DESIGN)	LF	13,758	\$12.00	\$165,096.00
22	609(B)	2'-8" COMBINED CURB AND GUTTER (8" BARRIER)	LF	11,409	\$32.00	\$365,088.00
23	610(A)	4" PC CONCRETE SIDEWALK	SY	3,004	\$50.00	\$150,216.67
24	610(B)	6" PC CONCRETE DRIVEWAY, REMOVE AND REPLACE	SY	2,254	\$72.50	\$163,447.22
25	610(G)	6" ASPHALT DRIVEWAY, REMOVE AND REPLACE	SY	1,408	\$70.00	\$98,591.11
26	610(I)	TACTILE WARNING DEVICE	SF	480	\$35.00	\$16,800.00
27	611(A)	MANHOLE, 5' I.D.	EA	3	\$3,500.00	\$10,500.00
28	611(A)	MANHOLE, 6' I.D.	EA	2	\$4,750.00	\$9,500.00
29	611(B)	ADDITIONAL DEPTH IN MANHOLE, (5' I.D. SWMH)	VF	1	\$350.00	\$350.00
30	611(B)	ADDITIONAL DEPTH IN MANHOLE, (6' I.D. SWMH)	VF	9	\$400.00	\$3,600.00
31	611(G)	INLET, CICI DESIGN 2(B)	EA	9	\$4,700.00	\$42,300.00
32	611(G)	INLET, CICI DESIGN 2(B) W/ SMALL ACCESS MANHOLE	EA	5	\$6,300.00	\$31,500.00
33	611(G)	INLET, CICI DESIGN 2(D)	EA	20	\$5,600.00	\$112,000.00
34	611(G)	INLET, CICI DESIGN 2(D) W/ SMALL ACCESS MANHOLE	EA	18	\$7,300.00	\$131,400.00
35	611(G)	INLET, CICI DESIGN 2(D) W/ LARGE ACCESS MANHOLE	EA	2	\$8,000.00	\$16,000.00
36	611(G)	INLET, CICI DESIGN 2(2A)	EA	1	\$5,600.00	\$5,600.00
37	611(G)	INLET, CICI DESIGN 2(2A) W/ LARGE ACCESS MANHOLE	EA	1	\$7,500.00	\$7,500.00
38	611(G)	INLET, CICI DESIGN 2(2B)	EA	1	\$5,800.00	\$5,800.00
39	611(G)	INLET, CICI DESIGN 2(2B) W/ LARGE ACCESS MANHOLE	EA	1	\$8,000.00	\$8,000.00
40	611(G)	INLET, CICI DESIGN 4	EA	1	\$6,000.00	\$6,000.00
41	611(G)	INLET, CICI DESIGN 4(D)	EA	2	\$7,600.00	\$15,200.00
42	611(G)	INLET, CICI DESIGN 4(D) W/ SMALL ACCESS MANHOLE	EA	2	\$9,000.00	\$18,000.00
43	611(G)	INLET, CICI DESIGN 4(D) W/ LARGE ACCESS MANHOLE	EA	1	\$10,000.00	\$10,000.00
44	611(G)	INLET, GPI TYPE I, DESIGN 1	EA	1	\$3,000.00	\$3,000.00
45	611(G)	INLET, GPI TYPE I, DESIGN 2	EA	1	\$4,000.00	\$4,000.00
46	611(H)	ADDITIONAL DEPTH IN INLET, DESIGN 2	VF	42	\$300.00	\$12,600.00
47	611(H)	ADDITIONAL DEPTH IN INLET, DESIGN 4	VF	5	\$600.00	\$3,000.00
48	611(L)	JUNCTION BOXES	CF	237	\$135.00	\$31,995.00
49	612(A)	MANHOLE ADJUST TO GRADE	EA	4	\$1,750.00	\$7,000.00
50	613(A)	24" REINFORCED CONCRETE PIPE, ROUND	LF	108	\$87.00	\$9,396.00
51	613(E)	15" CORRUGATED POLYPROPYLENE PIPE	LF	2,505	\$40.00	\$100,200.00
52	613(E)	18" CORRUGATED POLYPROPYLENE PIPE	LF	1,026	\$50.00	\$51,300.00
53	613(E)	24" CORRUGATED POLYPROPYLENE PIPE	LF	1,676	\$65.00	\$108,940.00
54	613(E)	30" CORRUGATED POLYPROPYLENE PIPE	LF	884	\$85.00	\$75,140.00
55	613(E)	36" CORRUGATED POLYPROPYLENE PIPE	LF	1,052	\$105.00	\$110,460.00
56	613(E)	42" CORRUGATED POLYPROPYLENE PIPE	LF	727	\$130.00	\$94,510.00
57	613(E)	48" CORRUGATED POLYPROPYLENE PIPE	LF	226	\$145.00	\$32,770.00
58	613(M)	CULVERT END TREATMENT, TYPE A4, RS, NG	EA	7	\$1,250.00	\$8,750.00
59	613(M)	CULVERT END TREATMENT, TYPE B4, RS, NG	EA	2	\$1,500.00	\$3,000.00
60	613(M)	CULVERT END TREATMENT, TYPE BB4, RC, GR	EA	2	\$2,500.00	\$5,000.00
61	616(B)	4" POLYVINYL CHLORIDE (PVC) PIPE	LF	1,721	\$65.00	\$111,865.00
62	616(B)	6" POLYVINYL CHLORIDE (PVC) PIPE	LF	32	\$80.00	\$2,560.00
63	616(B)	8" POLYVINYL CHLORIDE (PVC) PIPE	LF	39	\$95.00	\$3,705.00
64	616(B)	10" POLYVINYL CHLORIDE (PVC) PIPE	LF	70	\$120.00	\$8,400.00
65	616(B)	12" POLYVINYL CHLORIDE (PVC) PIPE	LF	2,152	\$130.00	\$279,760.00
66	616(D)	4" VALVE	EA	3	\$750.00	\$2,250.00
67	616(D)	6" VALVE	EA	1	\$1,250.00	\$1,250.00
68	616(D)	12" VALVE	EA	2	\$2,250.00	\$4,500.00
69	616(D)	RESET IRRIGATION CONTROL VALVE	EA	1	\$650.00	\$650.00
70	616(E)	CORPORATION STOPS	EA	4	\$300.00	\$1,200.00
71	616(F)	METER INSTALLATION	EA	4	\$300.00	\$1,200.00
72	616(G)	FIRE HYDRANT	EA	5	\$3,000.00	\$15,000.00

SUMMARY OF PAY QUANTITIES						
BASE BID ITEMS						
ITEM	SPEC. NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
73	619(A)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1	\$75,000.00	\$75,000.00
74	619(C)	SAWING PAVEMENT	LF	22,998	\$3.50	\$80,493.00
75	623(A)	BEAM GUARDRAIL W-BEAM SINGLE	LF	150	\$30.00	\$4,500.00
76	623(G)	GUARDRAIL END TREATMENT (31")	EA	4	\$3,000.00	\$12,000.00
77	641	MOBILIZATION	LS	1	\$400,000.00	\$400,000.00
78	642	CONSTRUCTION STAKING	LS	1	\$40,000.00	\$40,000.00
79	850(A)	SHEET ALUMINUM SIGNS	SF	352	\$25.00	\$8,800.00
80	851(C)	1 1/2" SQUARE TUBE POST	LF	18	\$15.00	\$270.00
81	851(C)	1 3/4" SQUARE TUBE POST	LF	819	\$16.00	\$13,104.00
82	851(C)	2" SQUARE TUBE POST	LF	258	\$17.00	\$4,386.00
83	854(A)	TRAFFIC STRIPE PAINT (4" YELLOW)	LF	40,042	\$0.25	\$10,010.50
84	855(A)	TRAFFIC STRIPE (THERMOPLASTIC) (4" WIDE)	LF	37,273	\$0.75	\$27,954.75
85	855(A)	TRAFFIC STRIPE (THERMOPLASTIC) (8" WIDE)	LF	410	\$1.50	\$615.00
86	855(A)	TRAFFIC STRIPE (THERMOPLASTIC) (24" WIDE)	LF	2,228	\$10.00	\$22,280.00
87	855(B)	TRAFFIC STRIPE (THERMOPLASTIC) (ARROWS)	EA	91	\$100.00	\$9,100.00
88	880(J)	CONSTRUCTION TRAFFIC CONTROL	LS	1	\$95,000.00	\$95,000.00
89	SPECIAL	REMOVE, STORE AND RESET SIGNS	EA	20	\$200.00	\$4,000.00
90	SPECIAL	LANDSCAPING	LS	1	\$175,000.00	\$175,000.00
91	SPECIAL	STREET LIGHTING	LS	1	\$963,250.24	\$963,250.24
92	SPECIAL	CURB RAMP (5' WIDE)	EA	24	\$1,250.00	\$30,000.00
93	SPECIAL	CURB RAMP (10' WIDE)	EA	18	\$1,750.00	\$31,500.00
ADD ALTERNATE ITEMS						
94	SPECIAL	6' MASONRY COLUMNS w/ PRECAST COLUMN CAPS	EA	25	\$1,600.00	\$40,000.00
95	SPECIAL	6' WOOD STOCKADE FENCE	LF	1,897	\$25.00	\$47,425.00
96	SPECIAL	6" x 8" SLOTTED STONE CURB	LF	1,897	\$15.00	\$28,455.00
TRAFFIC ITEMS						
97	802(B)	2" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	LF	525	\$5.00	\$2,625.00
98	802(B)	3" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	LF	195	\$7.00	\$1,365.00
99	802(C)	3" HIGH DENSITY PE PIPE - BORED	LF	715	\$40.00	\$28,600.00
100	803(A)	PULL BOX (SIZE I)	EA	9	\$800.00	\$7,200.00
101	803(A)	PULL BOX (SIZE II)	EA	3	\$1,000.00	\$3,000.00
102	804(A)	STRUCTURAL CONCRETE	CY	23.8	\$750.00	\$17,850.00
103	804(B)	REINFORCING STEEL	LB	3287	\$2.00	\$6,574.00
104	805(A)	(PL) REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LSUM	1	\$5,000.00	\$5,000.00
105	805(D)	(PL) REMOVE & RESET TRAFFIC SIGNAL EQUIPMENT	LSUM	1	\$4,000.00	\$4,000.00
106	806(A)	POLE & 40' TS MST. ARM (G.STL.)	EA	1	\$8,200.00	\$8,200.00
107	806(A)	POLE & 45' TS MST. ARM (G.STL.)	EA	1	\$10,000.00	\$10,000.00
108	806(A)	32' MH POLE, 20' TS & 10' LMA (G.STL.)	EA	1	\$6,600.00	\$6,600.00
109	806(A)	32' MH POLE 40' TS & 10' LMA (G.STL.)	EA	1	\$9,200.00	\$9,200.00
110	806(B)	10' MTG. HT. TS PED. POLE (G.STL.)	EA	13	\$800.00	\$10,400.00
111	809(A)	ROADWAY LUMINAIRE	EA	2	\$1,000.00	\$2,000.00
112	810(A)	SERVICE POLE	EA	3	\$1,500.00	\$4,500.00
113	811	1/C NO. 6 ELECTRICAL CONDUCTOR	LF	600	\$2.26	\$1,356.00
114	811	1/C NO. 10 ELECTRICAL CONDUCTOR	LF	2445	\$1.10	\$2,689.50
115	825	TRAFFIC SIGNAL CONTROLLER ASSEMBLY	EA	3	\$30,000.00	\$90,000.00
116	828	(PL)DETECTION SYSTEM (VIDEO)	LSUM	1	\$120,000.00	\$120,000.00
117	830	PEDESTRIAN PUSH BUTTON	EA	20	\$1,500.00	\$30,000.00
118	831	1WAY 3SEC. ADJ. SIG. HD. S-6	EA	7	\$700.00	\$4,900.00
119	831	1WAY 4SEC. ADJ. SIG. HD. S-13	EA	9	\$850.00	\$7,650.00
120	831	1WAY 2SEC. ADJ. PED. SIG. HD. S-20	EA	17	\$600.00	\$10,200.00
121	833	BACKPLATE	EA	16	\$150.00	\$2,400.00
122	834(A)	5/C TRAFFIC SIGNAL ELECTRICAL CABLE	LF	5810	\$1.10	\$6,391.00
123	834(A)	7/C TRAFFIC SIGNAL ELECTRICAL CABLE	LF	720	\$2.40	\$1,728.00
124	834(A)	21/C TRAFFIC SIGNAL ELECTRICAL CABLE	LF	1690	\$4.50	\$7,605.00
125	834(B)	2/C SHIELDED LOOP DETECTOR LEAD-IN CABLE	LF	125	\$0.80	\$100.00
126	840(B)	E.P.S. OPTICAL DETECTOR	EA	9	\$600.00	\$5,400.00
127	840(C)	E.P.S. OPTICAL DETECTOR CABLE	LF	1765	\$1.07	\$1,888.55
128	840(D)	E.P.S. 2 CHANNEL PHASE SELECTOR	EA	5	\$2,800.00	\$14,000.00
129	850(C)	MAST ARM MOUNTED SIGNS (ALUMINUM)	SF	150.5	\$40.00	\$6,020.00
130	890	(PL) TRAFFIC ITEMS	LSUM	1	\$16,000.00	\$16,000.00

TOTAL BASE BID ITEMS	\$8,052,556.51
TOTAL ADD ALTERNATE ITEMS	\$115,880.00
TOTAL TRAFFIC ITEMS	\$455,442.05
TOTAL ALL ITEMS	\$8,623,878.56
15% CONTENGENCY	\$1,293,581.78
SUBTOTAL	\$9,917,460.34
CONSTRUCTION INSPECTION SERVICES	\$750,000.00
CONSTRUCTION TOTAL	\$10,667,460.34

UTILITY RELOCATIONS					
	Description	Unit	Quantity	Unit Price	Total
	8" Magellan Pipeline (W. 118th Street)	LS	1.00	\$140,000.00	\$140,000.00
	24" Explorer Pipeline (W. 118th Street)	LS	1.00	\$250,000.00	\$250,000.00
	AEP relocations (W. 131st St. to W. 121st St.)	LS	1.00	\$300,000.00	\$300,000.00
			Utility Relocation Total		\$690,000.00

RIGHT-OF-WAY AND UTILITY EASEMENTS					
Location	Description	Unit	Quantity	Unit Price	Total
Sec. 1, T17N,	Street R/W varies 40' to 50' parcel # 00010	AC	1.08	\$325,000.00	\$351,000.00
	Street R/W varies 40' to 50' parcel # 56210	AC	0.98	\$325,000.00	\$318,500.00
Sec. 6 T17N,	Street R/W to 50' parcel # 28610	AC	0.34	\$325,000.00	\$110,500.00
	Utility Easement to 60' parcel # 28610	AC	0.13	\$162,500.00	\$21,125.00
Sec. 25 T18N, R12E	Street R/W to 62' parcel # 62950 for dedicated right turn lane for SB Elm to WB 111th	AC	0.05	\$500,000.00	\$25,000.00
	Utility Easement parcel # 62950 for dedicated right turn lane for SB Elm to WB 111th	AC	0.05	\$500,000.00	\$25,000.00
Sec. 36 T18N, R12E	Street R/W parcel #00010	AC	0.35	\$430,000.00	\$150,500.00
	Utility Easement parcel #00010	AC	0.35	\$215,000.00	\$75,250.00
	Street R/W parcel #01010	AC	0.10	\$430,000.00	\$43,000.00
	Utility Easement parcel #01010	AC	0.10	\$215,000.00	\$21,500.00
	Street R/W parcel #16110	AC	0.15	\$430,000.00	\$64,500.00
	Utility Easement parcel #16110	AC	0.15	\$215,000.00	\$32,250.00
	Street R/W parcel #61710	AC	0.06	\$430,000.00	\$25,800.00
	Utility Easement parcel #61710	AC	0.06	\$215,000.00	\$12,900.00
	Street R/W parcel #65210	AC	0.18	\$430,000.00	\$77,400.00
Sec. 31 T18N,	Street R/W parcel #29170	AC	0.05	\$430,000.00	\$21,500.00
	Street R/W parcel #29180	AC	0.06	\$430,000.00	\$25,800.00
			Right of way and Easement Total		\$1,440,225.00

CONSTRUCTION TOTAL \$10,667,460.34
RIGHT-OF-WAY & UTILITIES \$2,130,225.00

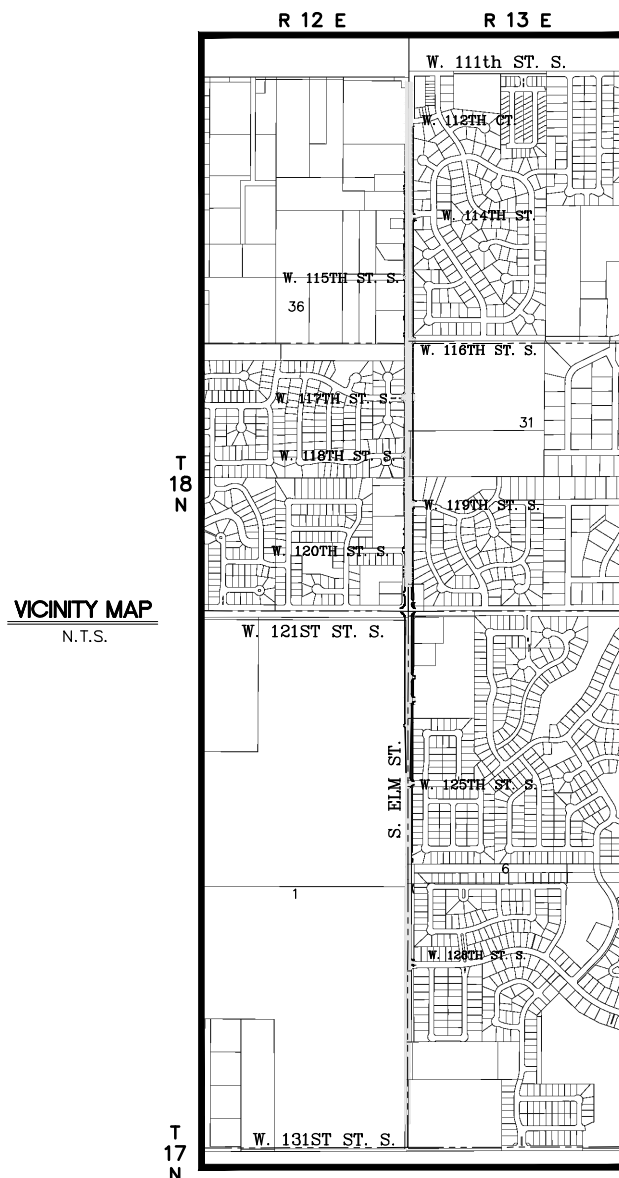
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5-LANE OPTION
121st to 131st STREET

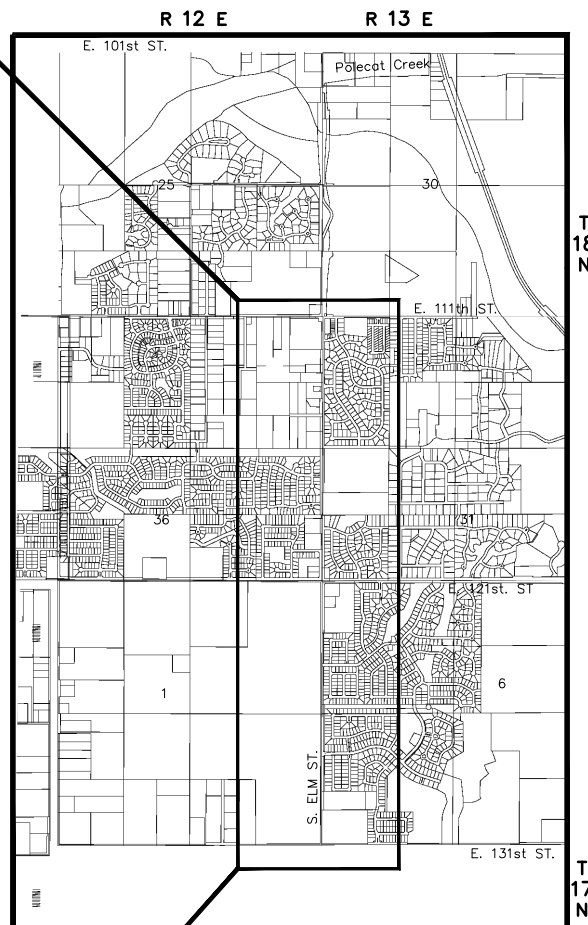
CITY OF JENKS, OKLAHOMA

CONCEPTUAL PLANS FOR STREET IMPROVEMENTS

S. ELM ST. FROM W. 131ST ST. SOUTH TO W. 111TH ST. SOUTH



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

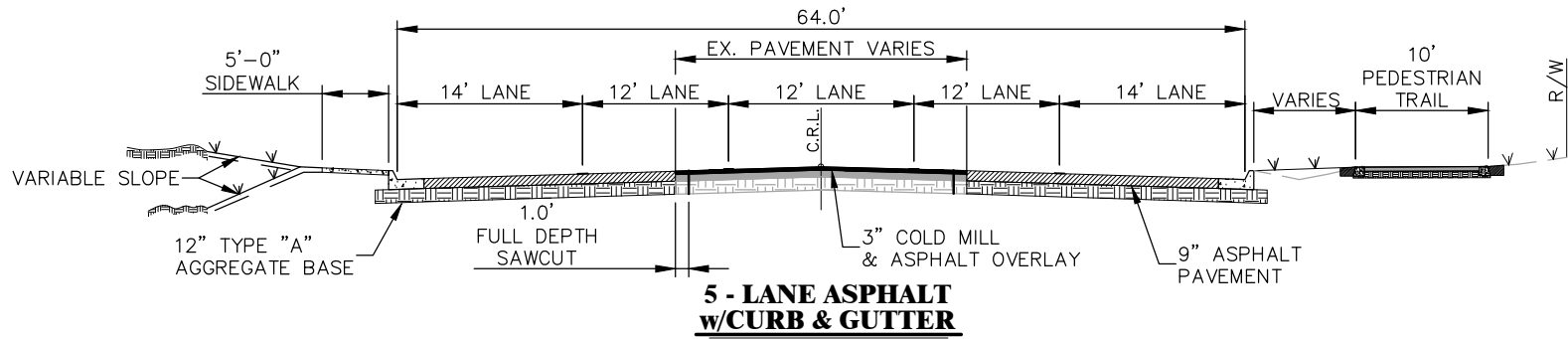


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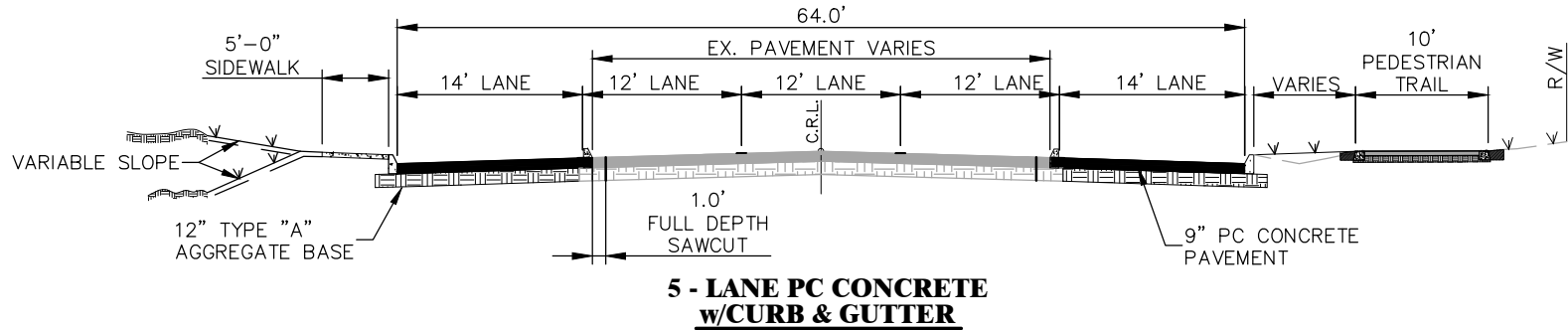


Marquardt Engineering, PLLC

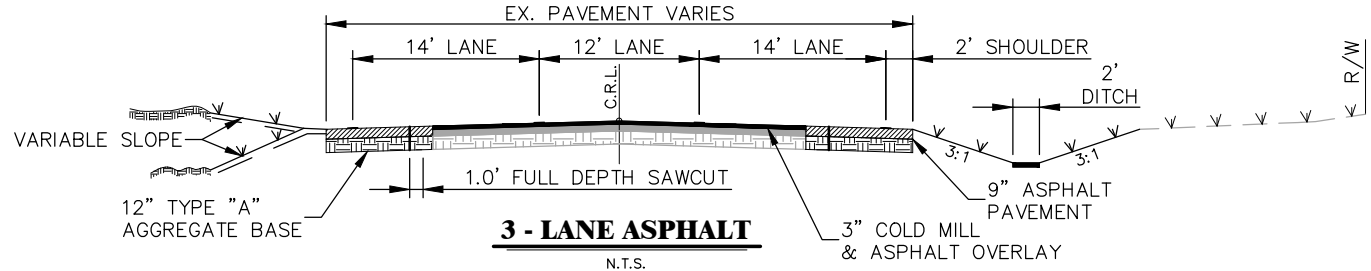
CA. 6911 (PE) EXP. 6-30-2021
5710 S. GARNETT ROAD
TULSA, OKLAHOMA 74146
TEL: 918-704-8781
keith.marquardt@gmail.com



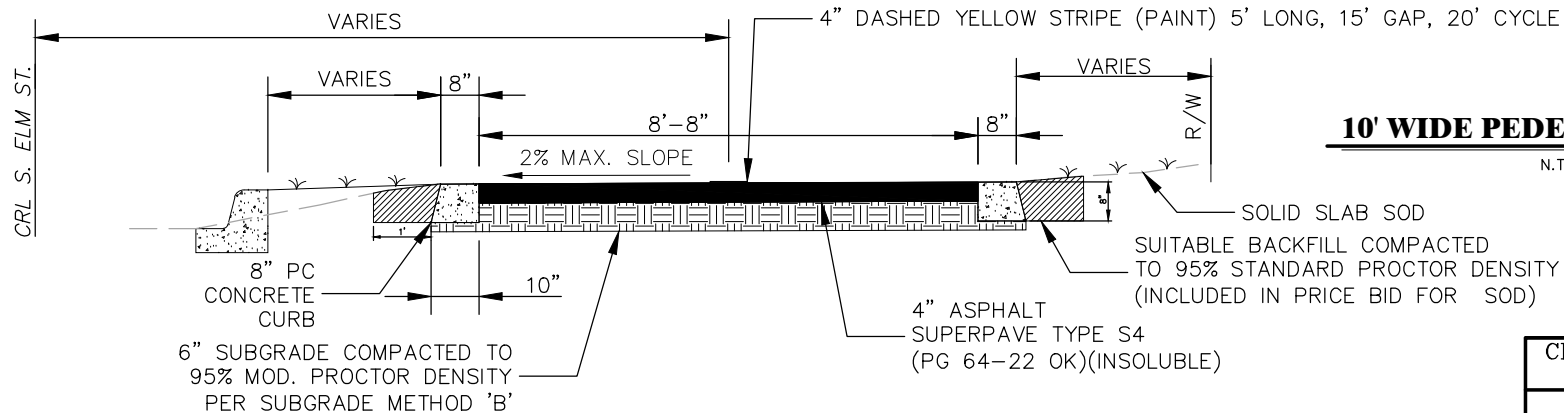
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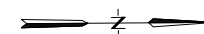
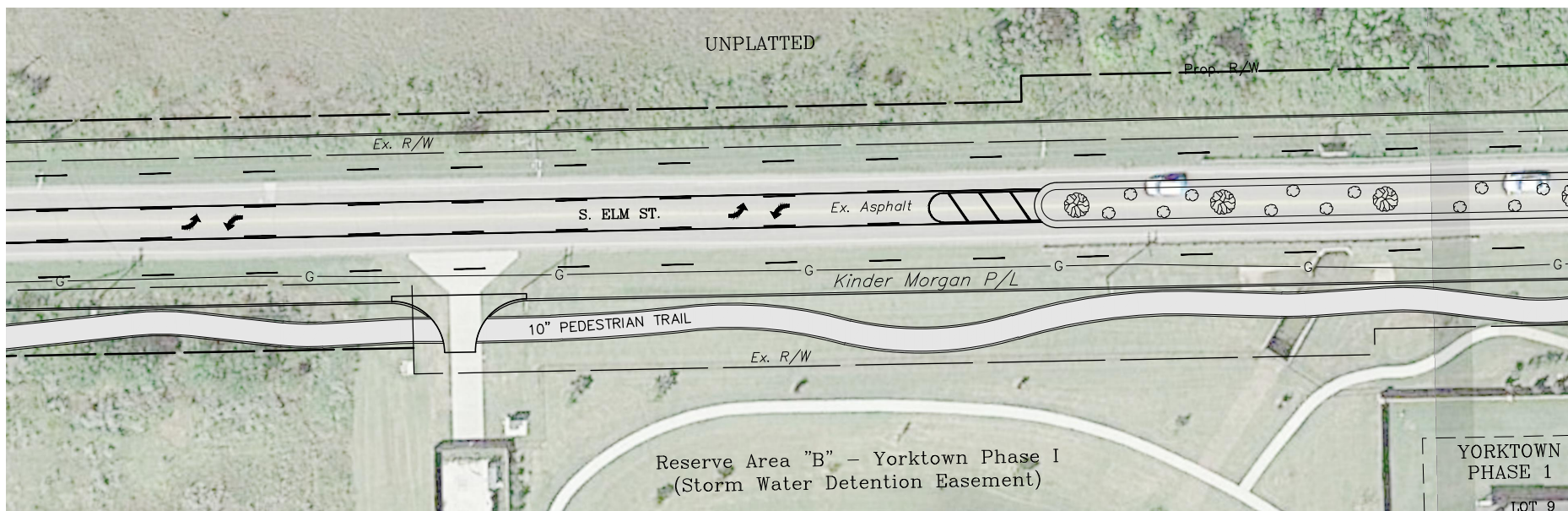
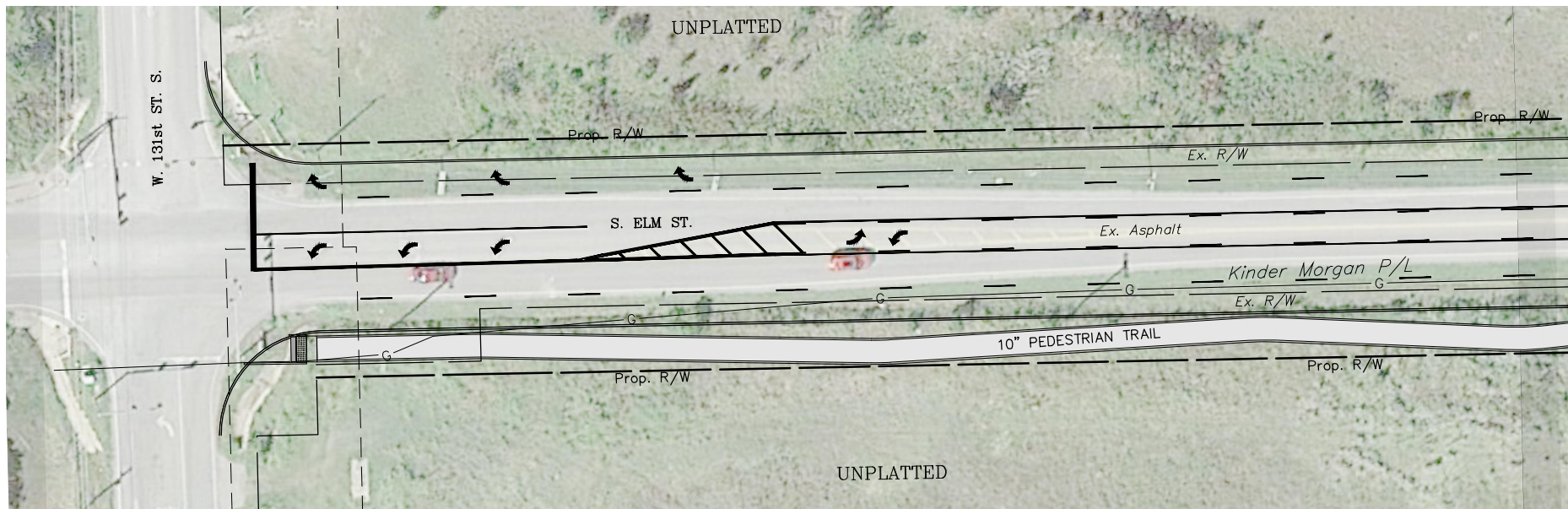
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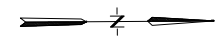
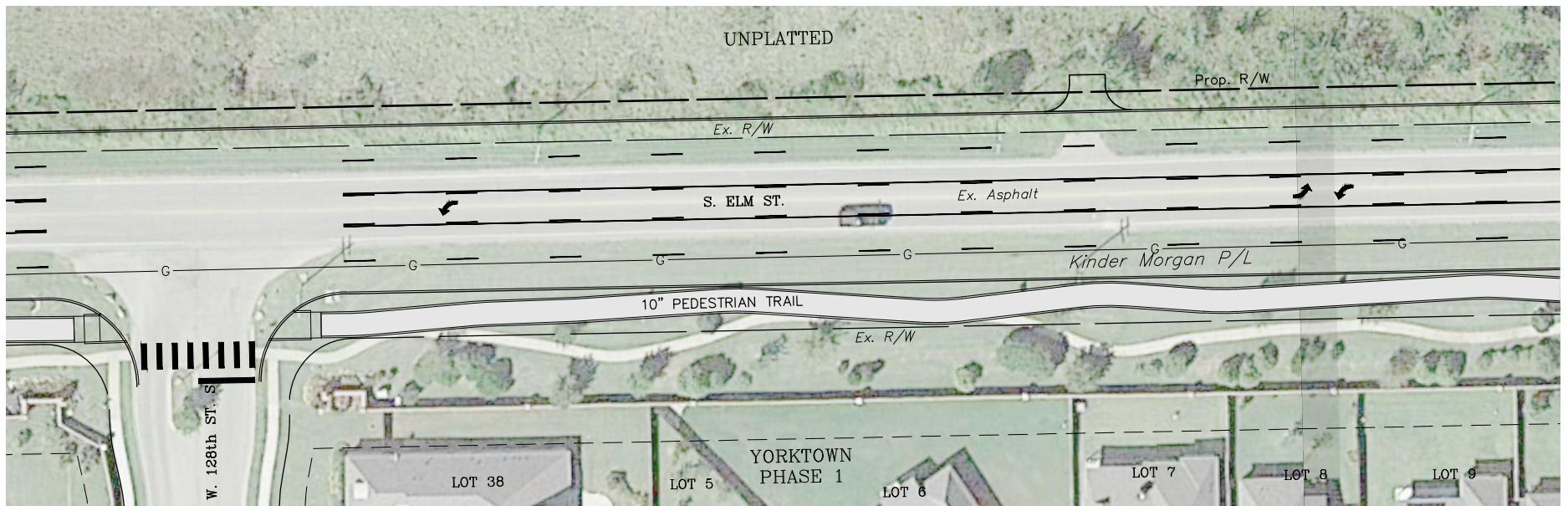
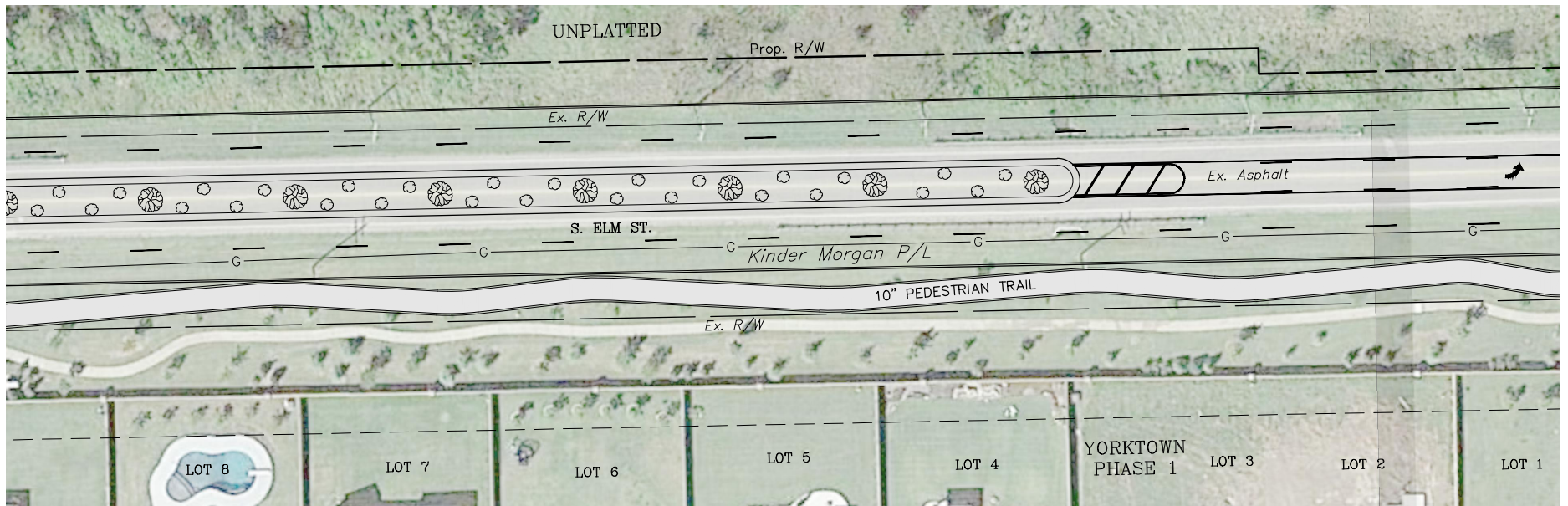
CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS

Marquardt Engineering



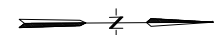
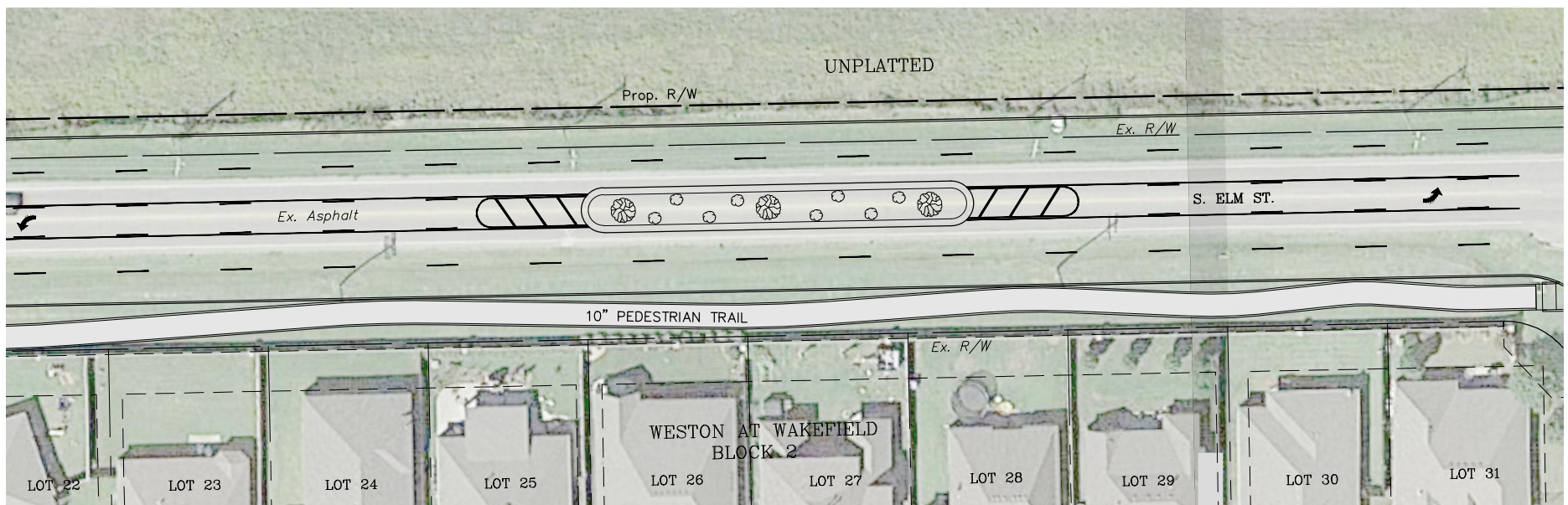
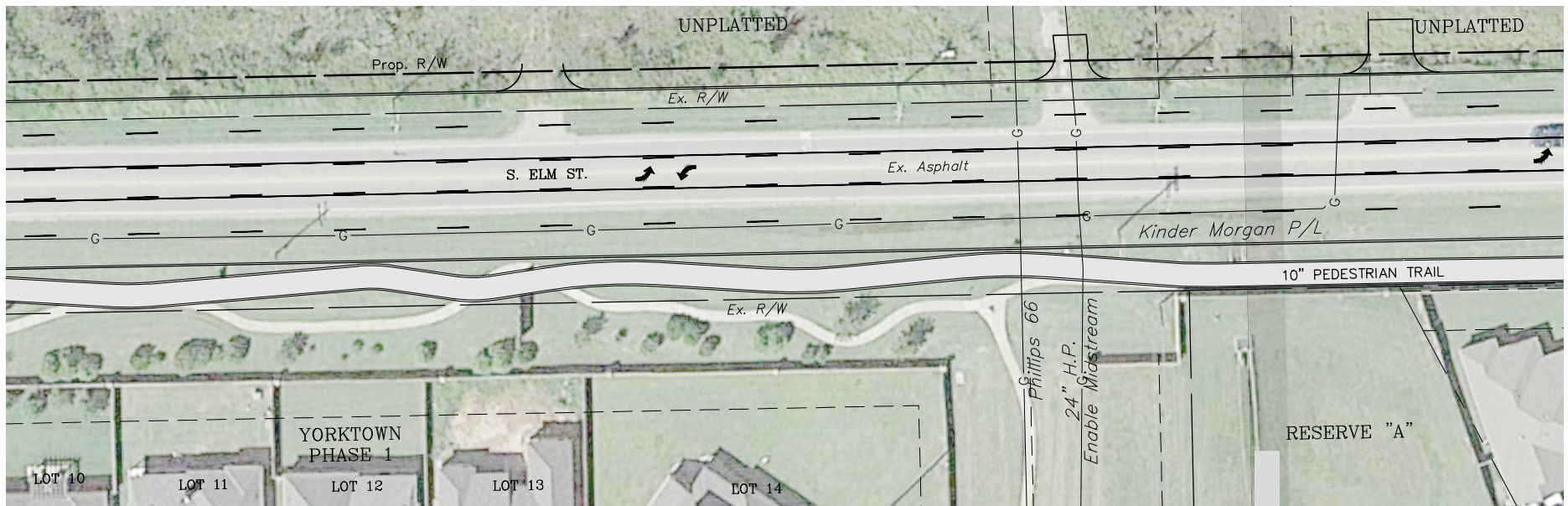
CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (1)

Marquardt
Engineering



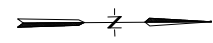
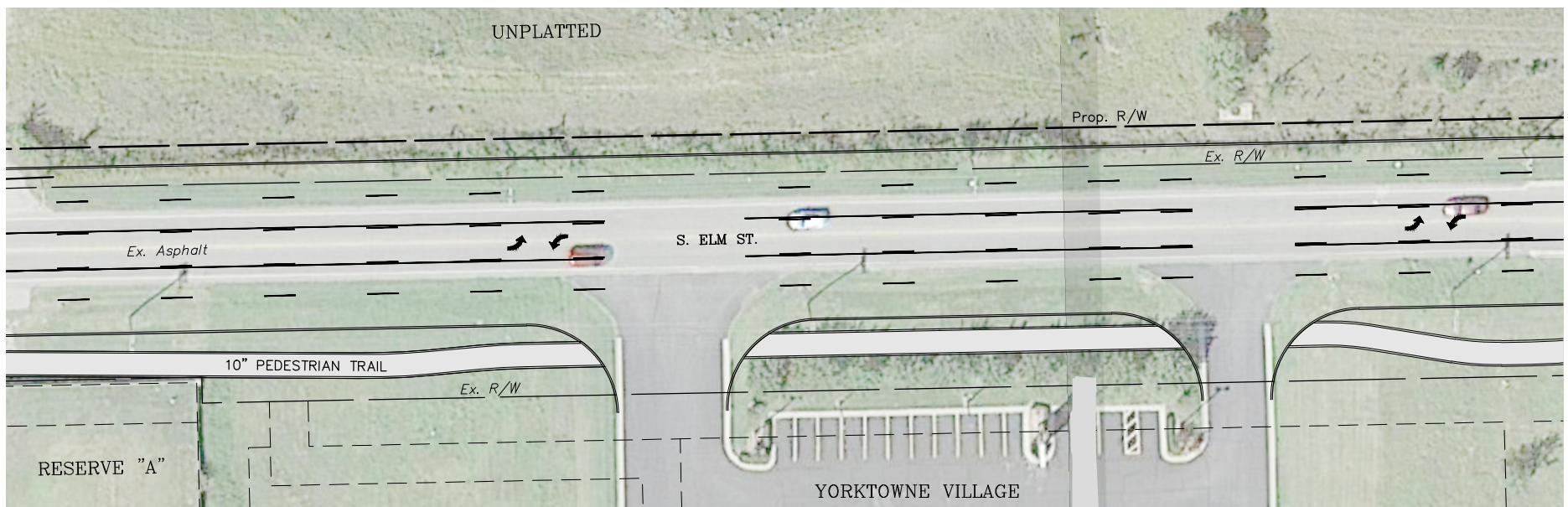
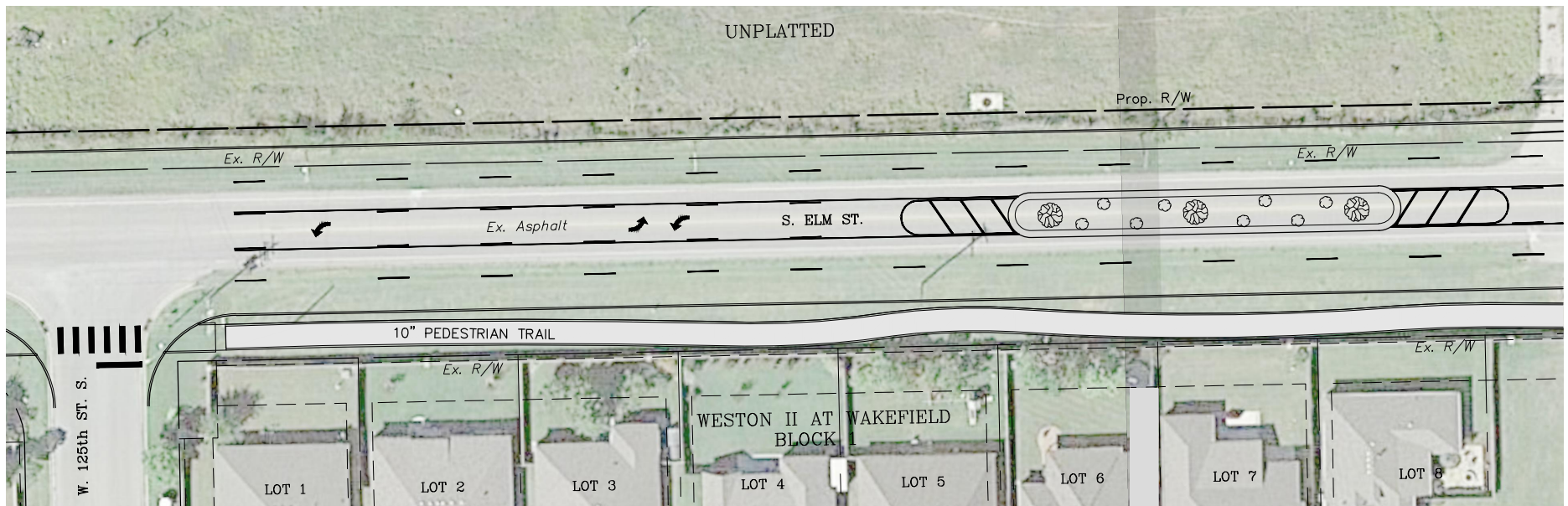
CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (2)

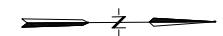
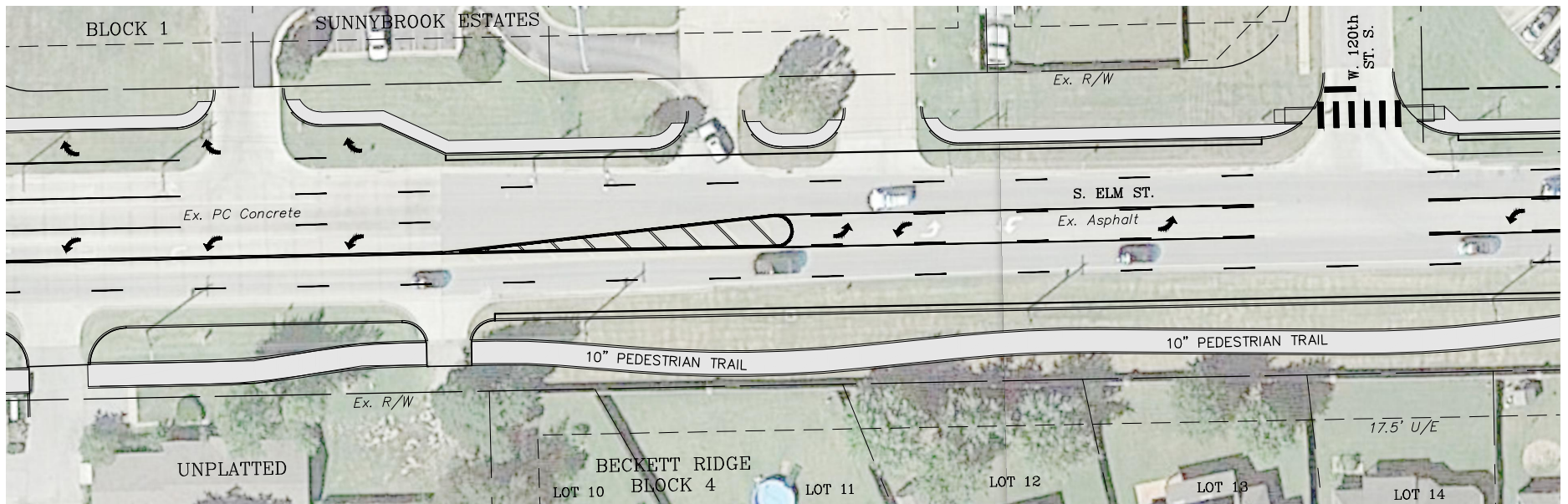
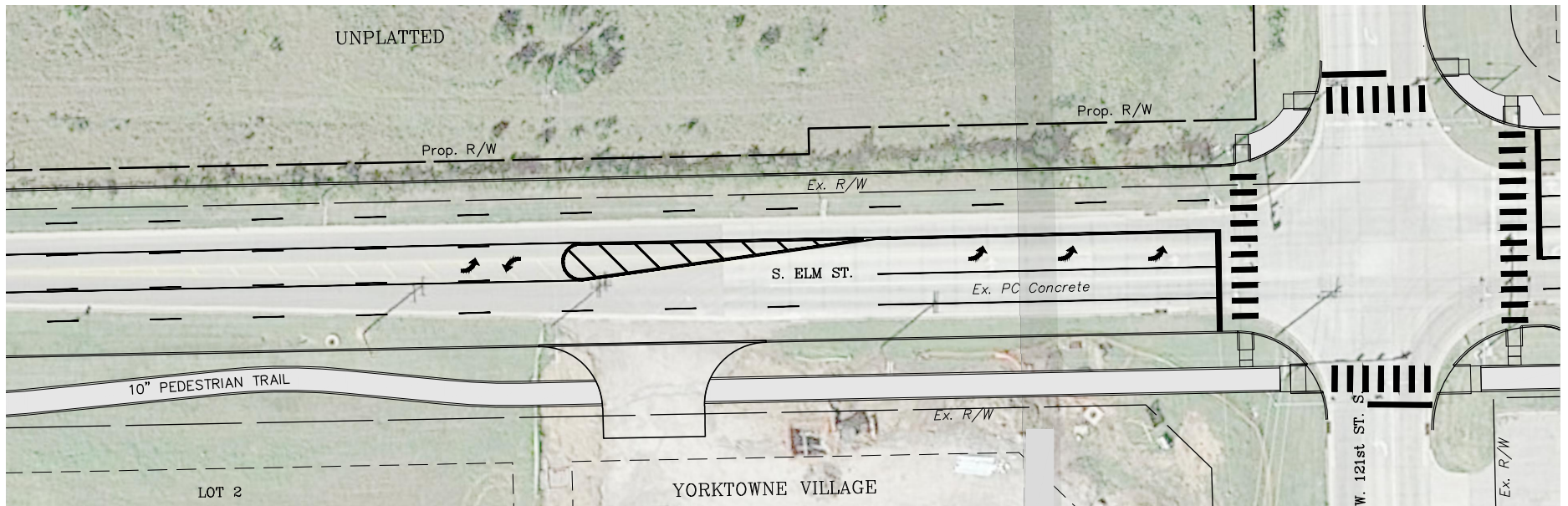


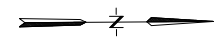
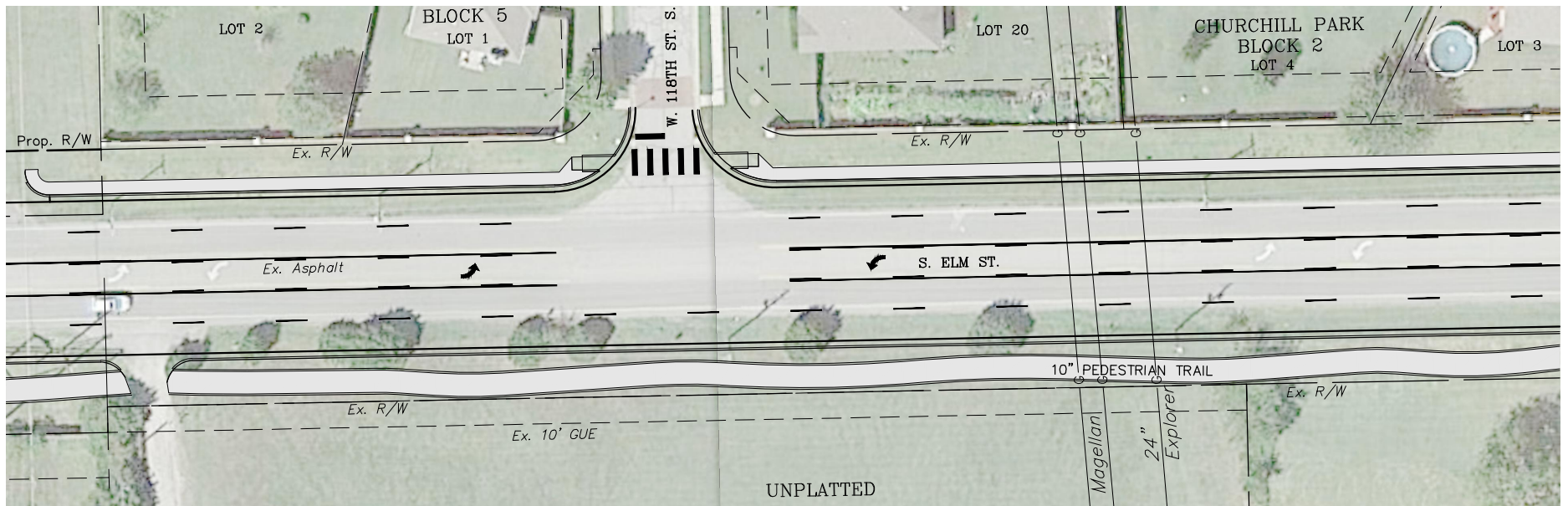
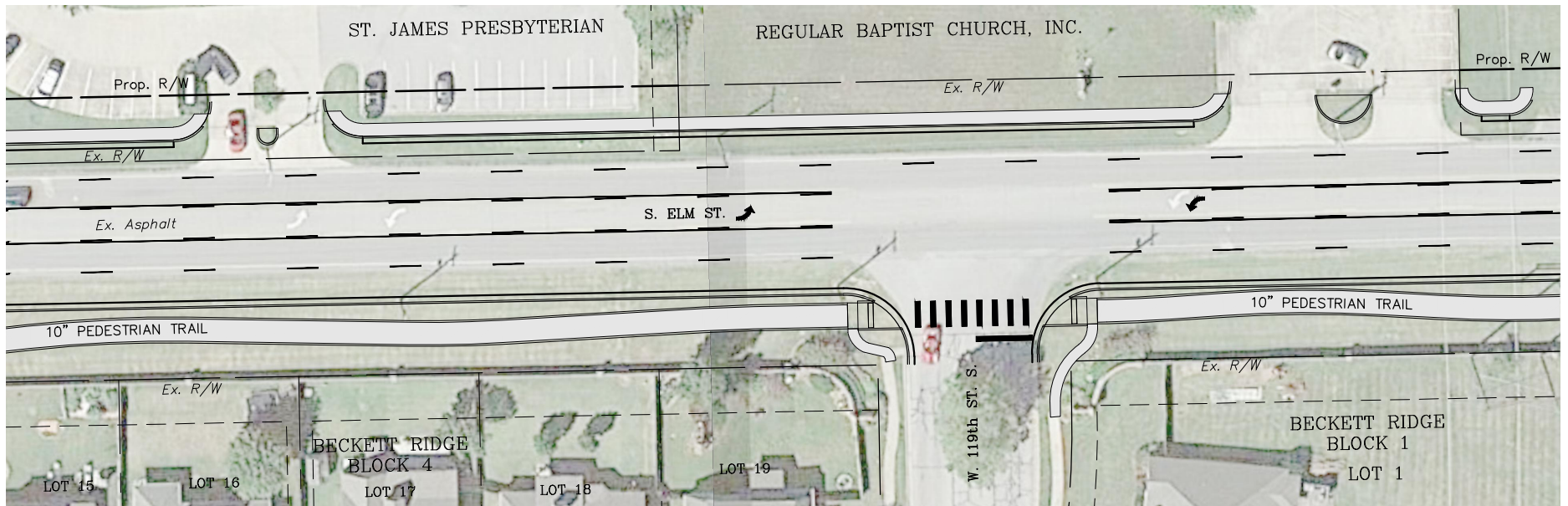


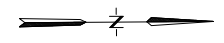
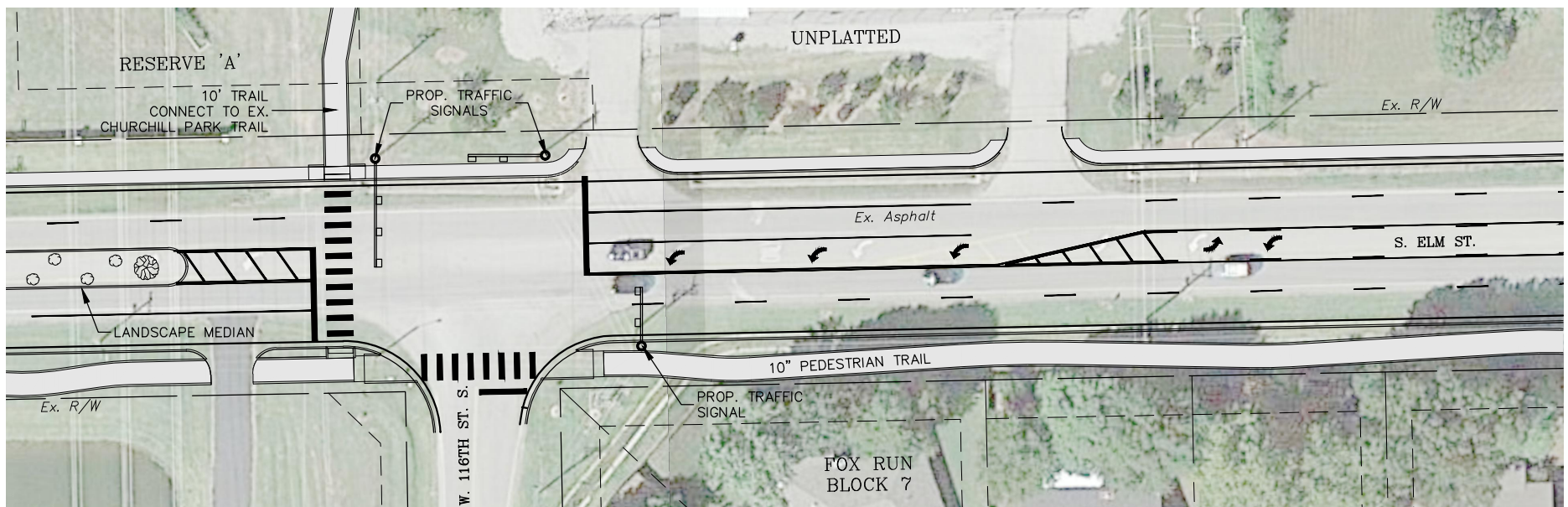
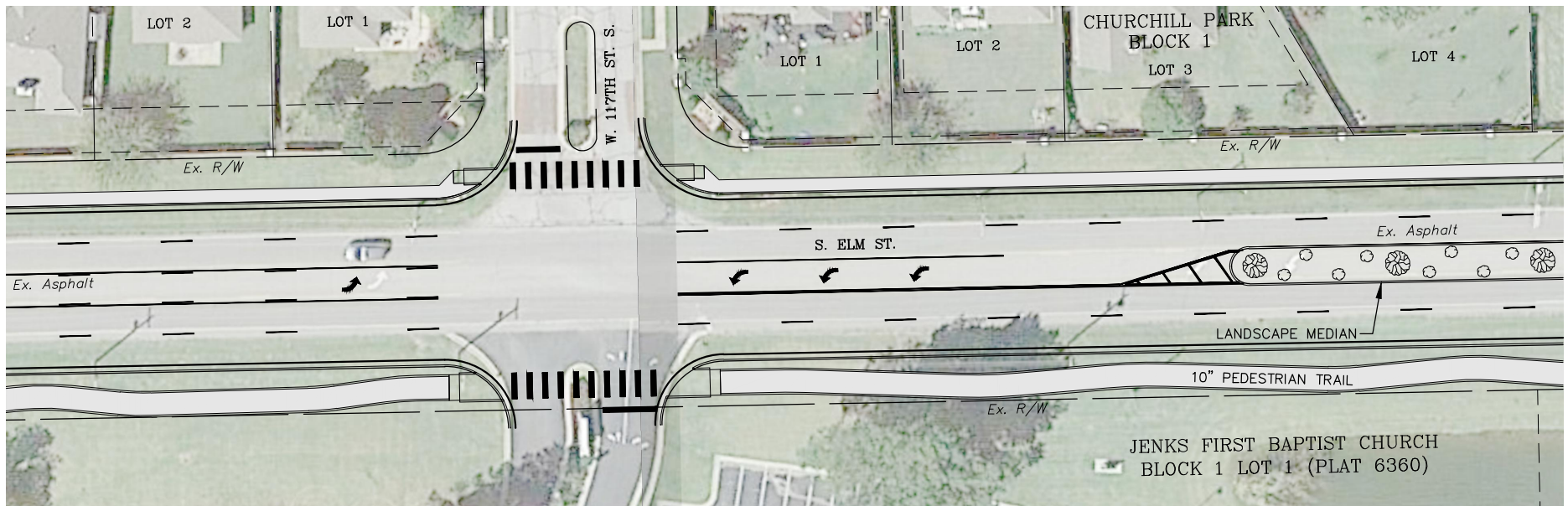
CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (3)

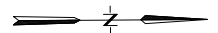
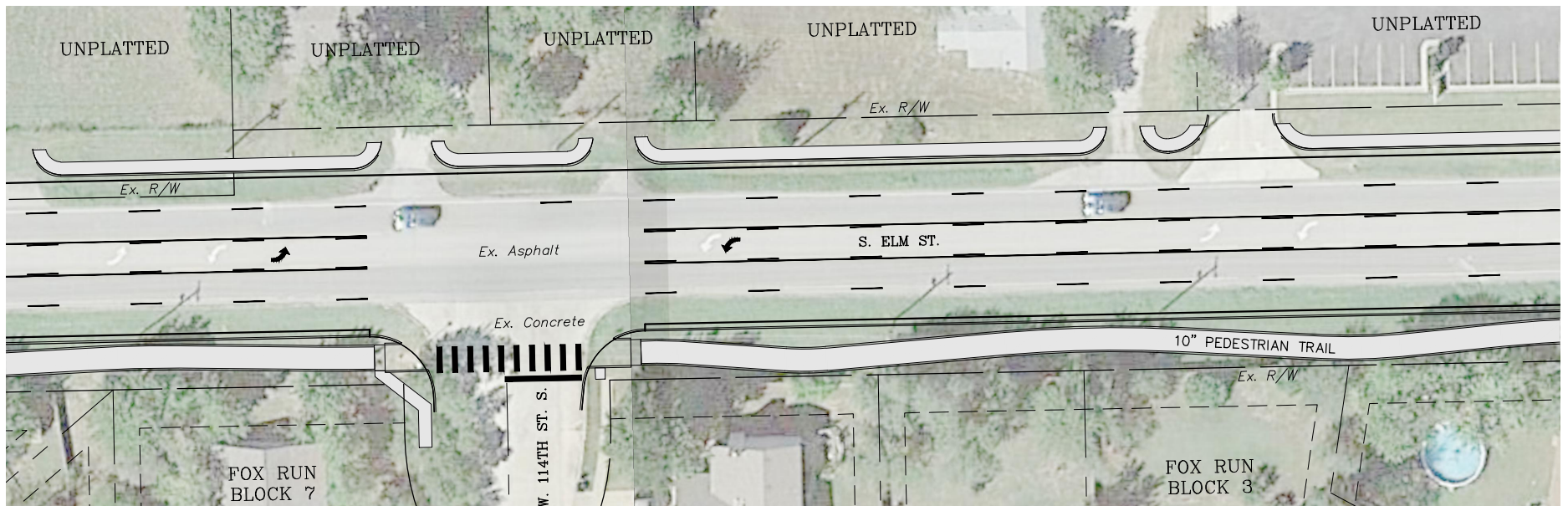
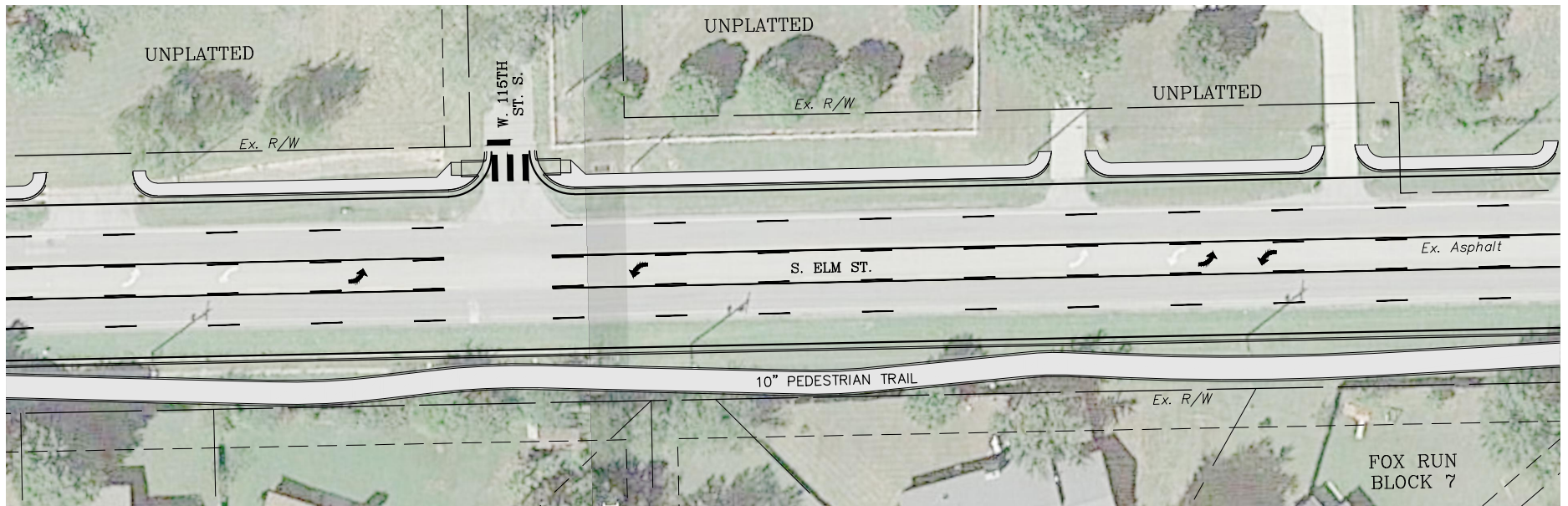






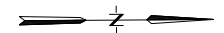
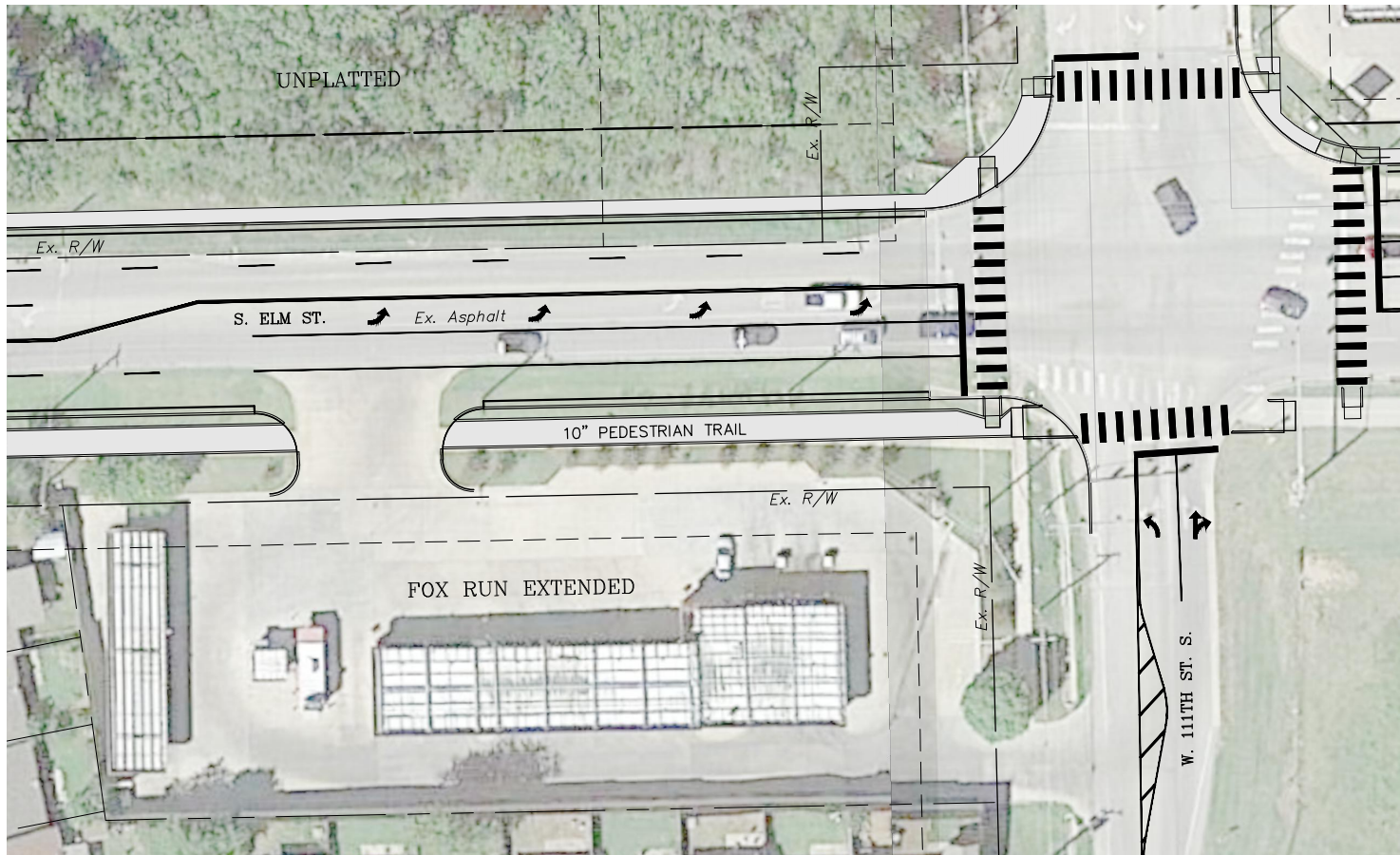
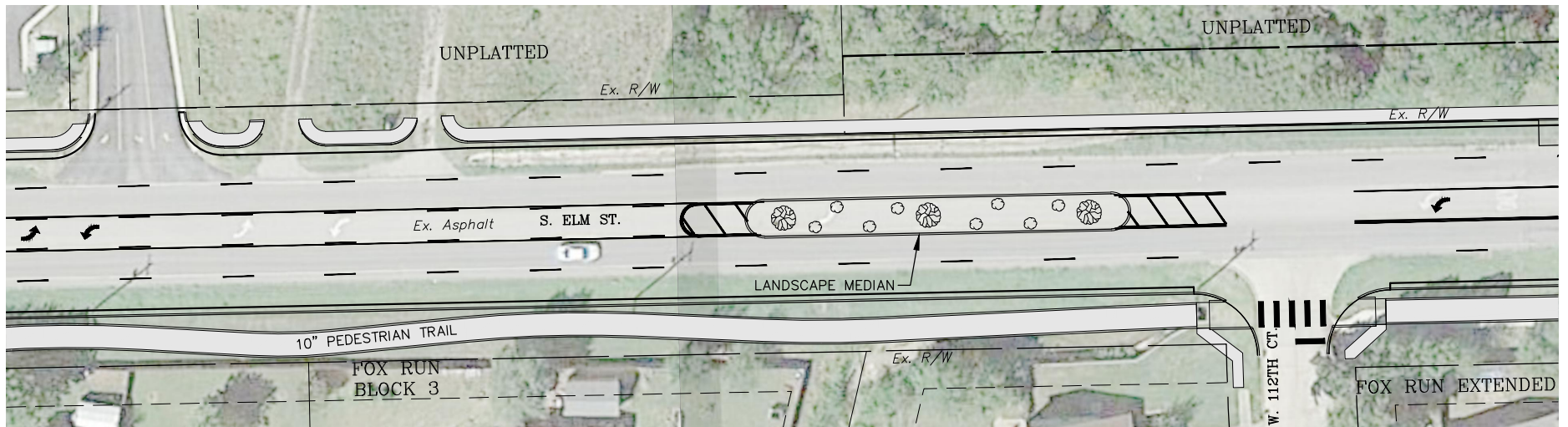






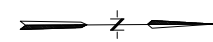
CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (8)

Marquardt
Engineering



CITY OF JENKS, OKLAHOMA
S. ELM ST. IMPROVEMENTS (9)

Marquardt
Engineering



South Elm Street Widening

Additional Cost to Extend 5-Lane and Trail to W. 131st Street

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
1	201(A)	CLEARING AND GRUBBING	LS	1	\$2,500.00	\$2,500.00
2	202(A)	UNCLASSIFIED EXCAVATION	CY	4,000	\$15.00	\$60,000.00
3	205(A)	TYPE A SALVAGED TOPSOIL	LS	1	\$1,500.00	\$1,500.00
4	230(A)	SOLID SLAB SODDING	SY	-4,000	\$3.50	-\$14,000.00
5	303(A)	AGGREGATE BASE TYPE A	CY	2,500	\$42.00	\$105,000.00
6	310(B)	SUBGRADE METHOD 'B'	SY	2,500	\$2.00	\$5,000.00
7	325	SEPARATOR FABRIC	SY	3,200	\$1.50	\$4,800.00
8	409(A)	FABRIC REINFORCEMENT	SY	750	\$5.00	\$3,750.00
9	411(B)	SUPERPAVE, TYPE S3 -PG (64-22) OK	TON	2,505	\$80.00	\$200,400.00
10	411(C)	SUPERPAVE, TYPE S4 -PG (64-22) OK (INSOLUBLE)	TON	744	\$85.00	\$63,240.00
11	411(C)	SUPERPAVE, TYPE S4 -PG (70-28) OK (INSOLUBLE)	TON	1,378	\$90.00	\$124,020.00
12	412	COLD MILLING PAVEMENT (3' DEEP)	SY	750	\$3.00	\$2,250.00
13	509(A)	CLASS AA CONCRETE	CY	150	\$650.00	\$97,500.00
14	511(A)	REINFORCING STEEL	LBS	20,000	\$1.25	\$25,000.00
15	609(A)	CONCRETE CURB, (8" SPECIAL DESIGN)	LF	6,896	\$12.00	\$82,752.00
16	609(B)	2'-8" COMBINED CURB AND GUTTER (8" BARRIER)	LF	7,309	\$32.00	\$233,888.00
17	610(A)	4" PC CONCRETE SIDEWALK	SY	300	\$50.00	\$15,000.00
18	610(I)	TACTILE WARNING DEVICE	SF	24	\$35.00	\$840.00
19	611(A)	MANHOLE, 5' I.D.	EA	3	\$3,500.00	\$10,500.00
20	611(A)	MANHOLE, 6' I.D.	EA	2	\$4,750.00	\$9,500.00
21	611(B)	ADDITIONAL DEPTH IN MANHOLE, (5' I.D. SWMH)	VF	1	\$350.00	\$350.00
22	611(B)	ADDITIONAL DEPTH IN MANHOLE, (6' I.D. SWMH)	VF	9	\$400.00	\$3,600.00
23	611(G)	INLET, CICI DESIGN 2(B)	EA	6	\$4,700.00	\$28,200.00
24	611(G)	INLET, CICI DESIGN 2(B) W/ SMALL ACCESS MANHOLE	EA	3	\$6,300.00	\$18,900.00
25	611(G)	INLET, CICI DESIGN 2(D)	EA	10	\$5,600.00	\$56,000.00
26	611(G)	INLET, CICI DESIGN 2(D) W/ SMALL ACCESS MANHOLE	EA	9	\$7,300.00	\$65,700.00
27	611(G)	INLET, CICI DESIGN 2(D) W/ LARGE ACCESS MANHOLE	EA	1	\$8,000.00	\$8,000.00
28	611(G)	INLET, CICI DESIGN 2(2A)	EA	1	\$5,600.00	\$5,600.00
29	611(G)	INLET, CICI DESIGN 2(2A) W/ LARGE ACCESS MANHOLE	EA	1	\$7,500.00	\$7,500.00
30	611(G)	INLET, CICI DESIGN 2(2B)	EA	1	\$5,800.00	\$5,800.00
31	611(G)	INLET, CICI DESIGN 2(2B) W/ LARGE ACCESS MANHOLE	EA	1	\$8,000.00	\$8,000.00
32	611(G)	INLET, CICI DESIGN 4	EA	1	\$6,000.00	\$6,000.00
33	611(G)	INLET, CICI DESIGN 4(D)	EA	1	\$7,600.00	\$7,600.00
34	611(G)	INLET, CICI DESIGN 4(D) W/ SMALL ACCESS MANHOLE	EA	1	\$9,000.00	\$9,000.00
35	611(G)	INLET, CICI DESIGN 4(D) W/ LARGE ACCESS MANHOLE	EA	1	\$10,000.00	\$10,000.00
36	611(G)	INLET, GPI TYPE I, DESIGN 1	EA	1	\$3,000.00	\$3,000.00
37	611(G)	INLET, GPI TYPE I, DESIGN 2	EA	1	\$4,000.00	\$4,000.00
38	611(H)	ADDITIONAL DEPTH IN INLET, DESIGN 2	VF	21	\$300.00	\$6,300.00
39	611(H)	ADDITIONAL DEPTH IN INLET, DESIGN 4	VF	5	\$600.00	\$3,000.00
40	611(L)	JUNCTION BOXES	CF	150	\$135.00	\$20,250.00
41	612(A)	MANHOLE ADJUST TO GRADE	EA	4	\$1,750.00	\$7,000.00
42	613(A)	24" REINFORCED CONCRETE PIPE, ROUND	LF	54	\$87.00	\$4,698.00
43	613(E)	15" CORRUGATED POLYPROPYLENE PIPE	LF	1,250	\$40.00	\$50,000.00
44	613(E)	18" CORRUGATED POLYPROPYLENE PIPE	LF	550	\$50.00	\$27,500.00
45	613(E)	24" CORRUGATED POLYPROPYLENE PIPE	LF	800	\$65.00	\$52,000.00
46	613(E)	30" CORRUGATED POLYPROPYLENE PIPE	LF	450	\$85.00	\$38,250.00
47	613(E)	36" CORRUGATED POLYPROPYLENE PIPE	LF	600	\$105.00	\$63,000.00
48	613(E)	42" CORRUGATED POLYPROPYLENE PIPE	LF	350	\$130.00	\$45,500.00
49	613(E)	48" CORRUGATED POLYPROPYLENE PIPE	LF	100	\$145.00	\$14,500.00
50	613(M)	CULVERT END TREATMENT, TYPE A4, RS, NG	EA	-7	\$1,250.00	-\$8,750.00
51	613(M)	CULVERT END TREATMENT, TYPE B4, RS, NG	EA	-2	\$1,500.00	-\$3,000.00
52	613(M)	CULVERT END TREATMENT, TYPE BB4, RC, GR	EA	-1	\$2,500.00	-\$2,500.00
53	619(A)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1	\$7,500.00	\$7,500.00
54	619(C)	SAWING PAVEMENT	LF	1,000	\$3.50	\$3,500.00
55	623(A)	BEAM GUARDRAIL W-BEAM SINGLE	LF	-150	\$30.00	-\$4,500.00
56	623(G)	GUARDRAIL END TREATMENT (31")	EA	-4	\$3,000.00	-\$12,000.00
57	641	MOBILIZATION	LS	1	\$125,000.00	\$125,000.00
58	642	CONSTRUCTION STAKING	LS	1	\$2,500.00	\$2,500.00
59	854(A)	TRAFFIC STRIPE PAINT (4" YELLOW)	LF	8,000	\$0.25	\$2,000.00
60	855(A)	TRAFFIC STRIPE (THERMOPLASTIC) (4" WIDE)	LF	4,000	\$0.75	\$3,000.00
61	855(B)	TRAFFIC STRIPE (THERMOPLASTIC) (ARROWS)	EA	40	\$100.00	\$4,000.00
62	880(J)	CONSTRUCTION TRAFFIC CONTROL	LS	1	\$7,500.00	\$7,500.00
63	SPECIAL	LANDSCAPING	LS	1	\$150,000.00	\$150,000.00
64	SPECIAL	CURB RAMP (5' WIDE)	EA	1	\$1,250.00	\$1,250.00
65	SPECIAL	CURB RAMP (10' WIDE)	EA	1	\$1,750.00	\$1,750.00
66	SPECIAL	TRAFFIC SIGNAL MODIFICATION (W. 131ST STREET)	EA	1	\$225,000.00	\$225,000.00

CONSTRUCTION SUBTOTAL	\$2,114,938.00
10% CONSTRUCTION CONTINGENCY	\$211,493.80
UTILITY RELOCATIONS	\$150,000.00
RIGHT-OF-WAY ACQUISITION	\$15,000.00

PROFESSIONAL SERVICES FEES	
TRAFFIC SIGNAL DESIGN	\$8,500.00
STRUCTURAL DESIGN	\$7,500.00
CIVIL DESIGN	\$57,500.00

ESTIMATED ADDITIONAL COST	\$2,564,931.80
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