179th STREET

QUIVIRA ROAD TO METCALF AVENUE

2021 PRELIMINARY ENGINEERING STUDY

SEPTEMBER 2022

PREPARED FOR:

OVERLAND PARK
KANSAS
ABOVE AND BEYOND. BY DESIGN.

PREPARED BY:

HNTB

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EXECUTIVE SUMMARY

This preliminary engineering study (PES) presents the results of the preliminary analysis to establish preliminary horizontal and vertical alignments for 179th Street from Quivira Road to Metcalf Avenue. The purpose of the study was to complete a preliminary design to minimize hydraulic impacts to Wolf Creek, environmental impacts to the Overland Park Arboretum and Botanical Gardens, and impacts to existing developments. This study will additionally serve as a planning tool for future development. The findings of this study were coordinated with the City of Overland Park and KDOT.

The major objectives of this study were as follows:

- Establish Design Criteria – Establish design guidelines, typical roadway sections and right-of-way widths for 179th Street.
- Develop Preliminary Horizontal/Vertical Alignments – Develop preliminary horizontal vertical alignments for 179th Street.
- Determine Major Drainage Improvements – Size facilities for major drainage crossings (bridges and culverts).
- Determine Total Project Cost – Provide opinion of probable total project cost including construction, utility relocation, right-of-way, administration, legal and engineering costs based upon 2022 costs.

The comprehensive solution to meet the objectives set forth is summarized in subsequent pages in this report:

179th Street is classified as a Thoroughfare Street in the 2019 Comprehensive Plan consisting of a four-lane divided roadway with two through lanes in each direction. The roadway section also includes curb and gutter, enclosed drainage systems, street lighting, sidewalk, and bike/hike trail. Additionally, the 179th Street corridor between Switzer Road and US-69 is designated in the Greenway Linkages Plan as an Arboretum Entrance Corridor to include additional landscape amenities. The Official Street Map identifies roundabouts at the following intersections: 179th Street & Quivira Road, 179th Street & Switzer Road, 179th Street & Antioch Road, 179th Street & Metcalf Avenue. The 2015 Safe Bicycle Use Outreach Project identifies this corridor to have bike/hike trails on both sides of 179th Street and buffered bike lanes on 179th Street.

The existing alignment is on the section line through most of the corridor except for an offset to the south of the section line from Quivira Road to Switzer Road and at Wolf Creek. Alternative alignments were analyzed on section line and on section line with an offset at Wolf Creek. The proposed centerline was determined to be offset 20’ south of the section line between Quivira Road and Switzer Road to minimize impacts to adjacent properties and on the section line between Switzer Road and Metcalf Avenue to limit impacts to the Wolf Creek channel and existing geologic features. The proposed bridge over Wolf Creek and the 179th Street profile were developed to keep water from overtopping the road during a 100-year storm and meet freeboard requirements (HGL + 2’) for the low chord of the bridge.

In addition to the PES for the 179th Street corridor, a preliminary analysis was performed for the US-69 & 179th Street interchange. In coordination with the 69Express project, a Break-in-Access (BIA) study was developed for the interchange improvements. The approval for this BIA has been included with this report in Appendix B.

INTRODUCTION

The study presented herein was authorized in an agreement between the City of Overland Park and HNTB Corporation on May 17, 2021. The agreement calls for the preparation of a preliminary engineering study and report together with preliminary plans.

The study establishes a recommended horizontal and vertical alignment for 179th Street from Quivira Road to Metcalf Avenue. Specifically, the study includes the following:

- Recommended typical sections.
- Required right-of-way widths.
- Proposed horizontal and vertical roadway alignments.
- Plan sheets showing existing right-of-way, ownership, utilities and topographic features, locations for retaining walls, construction limits and locations of major drainage structures.
- Bridge analysis including type, size, and location.
- Roadway cross sections.
- Opinion of probable project costs.

Each of these items is discussed in the following sections. In addition, plan and profile drawings are part of the report appendix to illustrate the recommended roadway improvements.

This Preliminary Engineering Study has been prepared by HNTB Corporation at the direction of the Overland Park Public Works Department and represents the best information available.

BASIC INFORMATION AND PROCEDURES

In the development of the preliminary engineering study, the following information and procedures were utilized:

- Topographic information along 179th Street, Antioch Road, US-69, and Metcalf Avenue was obtained from Johnson County AIMS maps. The City of Overland Park provided the AIMS maps.
- Topographic mapping and aerial imagery were obtained through drone survey.
- Kaw Valley Engineering provided survey of the section corners, existing Wolf Creek bridge, and Wolf Creek cross-sections.
- Utility companies were contacted to determine location of their facilities and easements. The utility information shown in the plans and identified in the report were taken from utility maps provided by each utility company and do not represent field verified locations.
- The following existing engineering studies for the corridor were obtained from the City of Overland Park and were considered in the layout of the proposed roadways:
    - "Quivira Road – 187th Street to 179th Street" prepared by HDR Engineering, submitted March 2021
    - "Switzer Road – 167th Street to 179th Street" prepared by Benesch, submitted February 2019.
    - "South Overland Park Transportation Plan" prepared by HNTB, submitted February 2015.
    - "Antioch Road – 167th Street to 179th Street" prepared by Olsson Associates, submitted August 2006.
- The following development plans for the corridor were obtained from the city of Overland Park and were considered in the layout of proposed roadways:
    - "Gladacres South 1st Plat" prepared by Allenbrand – Drews & Associates, approved December 15, 1988.
    - "Gladacres South 2nd Plat" prepared by Allenbrand – Drews & Associates, approved December 22, 1988.
    - "Gladacres Meadows" prepared by E. Garold Allenbrand, approved June 2, 1983.
    - "Paradise Farms" prepared by Landplan Engineering, recorded April 27, 1999.
    - "Wolf Valley" prepared by Schlagel & Schmidt, P.A., recorded May 15, 1998.
    - "Arbor View – First Plat" prepared by Phelps Engineering, INC , recorded August 29, 2014.
    - "Arbor View – Second Plat" prepared by Phelps Engineering, INC , recorded April 15, 2015.
    - "Arbor View – Fifth Plat" prepared by Phelps Engineering, INC, recorded April 27, 2018.
    - "Arbor View – Sixth Plat" prepared by Phelps Engineering, INC, recorded February 7, 2020.
    - "Arbor View – Seventh Plat" prepared by Phelps Engineering, INC, recorded February 7, 2020.
    - "Arbor View – Eighth Plat" prepared by Phelps Engineering, INC, recorded February 7, 2020.

- The following construction plans were obtained from the City of Overland Park and considered in the layout of the proposed roadways:
    - "179th Street Improvements (US Highway 69 to Metcalf Avenue)" prepared by Affinis Corp., submitted November 2019.
    - "Overland Park Arboretum & Botanical Gardens Visitors Center" prepared by DLR Group, submitted October 24, 2019.
    - "179th Street" prepared by Cook, Flatt and Strobel, submitted June 1, 2000.
- The HEC-RAS model for Wolf Creek was obtained from the Federal Emergency Management Agency
- Design criteria is in accordance with ordinances for the City of Overland Park, the Kansas Department of Transportation, and the American Association of State Highway and Transportation Officials (AASHTO) publication entitled, "A Policy on Geometric Design of Highways and Streets", dated 2018.
- Estimates of construction costs, utility relocation costs, right-of-way and easement acquisition cost are based on 2022 dollars.

EXISTING CONDITIONS

Existing Roadways

179th Street is an east/west thoroughfare serving Overland Park and Johnson County residents. It is a two-lane paved roadway with shoulders and open ditches. 179th Street is bordered entirely by Overland Park except for the east end limits at Metcalf Avenue which is adjacent to Johnson County. 179th Street currently does not extend eastward beyond Metcalf Avenue.

179th Street is intersected by a full diamond interchange at US-69 highway. There are two US-69 bridges over 179th St – a southbound US-69 bridge and a northbound US-69 bridge, each with two-lanes and shoulders. Both bridges have sub-standard clearances.

179th Street has four intersecting thoroughfares – Quivira Road, Switzer Road, Antioch Road, and Metcalf Avenue. South of 179th Street Quivira Road is currently a two-lane undivided roadway with no shoulders and open ditches, and north of 179th Street Quivira Road is currently a three-lane undivided roadway with no shoulders and open ditches for approximately 500' and then becomes a two-lane divided roadway with left turn lanes further north. Switzer Road is currently a two-lane undivided roadway with no shoulders and open ditches with a "T" intersection at 179th Street. Antioch Road is currently a two-lane undivided roadway with no shoulders and open ditches. Metcalf Avenue is currently a two-lane undivided roadway with shoulders and open ditches.

There are six intersecting residential side streets – Bond Avenue to the south, Bond Avenue to the north, Bluejacket Street, Goddard Street, Grant Street, and Kessler Street, with all currently being T intersections except for a four-way intersection at Goddard Street. There are numerous intersecting residential driveways and field entrances within the study limits. 179th Street also has one intersecting commercial entrance for the Overland Park Arboretum & Botanical Gardens.

Existing Right-of-Way

The existing right-of-way (ROW) for 179th Street from Quivira Road to Switzer Road is generally 40' north of the section line and 80' south of the section line. From Switzer Road to Grant Street, the existing ROW is 60' or greater on either side of the section line. From Grant Street to Antioch Road, the existing ROW on 179th Street is 75' north of the section line and 60' south of the section line. From Antioch Road to US-69, the existing ROW varies from 36' to 120' north of the section line and 50' to 135' south of the section line. From US-69 to Metcalf Avenue, the existing ROW includes 60' both north and south of the section line. The existing ROW on Grant Street is 60'. The existing ROW on Antioch Road is 60' west of the section line and 25' to 30' east of the section line north of 179th Street, and 50' west of the section line and 45' east of the section line south of 179th Street. The existing ROW on Metcalf Avenue varies from a total of 90' to 150' south of 179th Street and 175' to 200' north of 179th Street through the limits of the project area. The existing right-of-way is shown on the plan drawings in the Appendix.

Traffic Operations

Traffic operational analyses were performed at six locations along 179th Street between Grant Street and Metcalf Avenue. The 179th Street and Switzer Road and 179th Street and Quivira Road intersections were analyzed as part of previous PES projects; therefore, they were not included in the operational analysis for this project.

The 179th Street and Arboretum Drive intersection was included in the operational analyses, since there are plans to expand the Arboretum and include an additional driveway that intersects 179th Street at Grant Street. The intersections that were evaluated as part of the PES are shown in the Appendix on **Sheet 1** along with the existing intersection control and lane configurations.

179th Street Daily Traffic Volumes

As part of the PES, average annual daily traffic (AADT) volumes were developed for three segments of 179th Street. These volumes were calculated by applying a K-factor of 10% to adjacent intersection turning movement counts. The volumes shown for the segment between Quivira Road and Switzer Road are based on the 179th Street and Switzer turning movement count from the "Switzer Road – 167th Street to 179th Street" PES prepared by Benesch. The volumes for the remaining two segments are based on traffic volumes from the US 69 Express traffic analysis prepared by HNTB.

Table 1 – 179th Street AADT Volumes

179th Street between:	**2019**	**2050**
Quivira and Switzer	11,100	27,000
Switzer and Antioch	7,800	37,900
Antioch and Metcalf	7,400	37,100

Existing Traffic Volumes

Existing traffic volumes along 179th Street between Antioch Road and Metcalf Avenue were obtained from the US 69 Express traffic analysis. The traffic volumes at 179th Street and Grant were collected by MioVision on May 20, 2021. The volumes at the 179th Street and Arboretum Drive intersection were developed based on the surrounding intersection counts and trip generation estimates from the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 10th Edition. Based on these volumes, the morning peak hour along the corridor generally occurs at 7:30 AM and the afternoon peak hour occurs at 4:45 PM. **Sheet 2** in the Appendix summarizes the existing AM and PM peak hour volumes. In addition to the peak commuter periods, the school dismissal peak hour was identified to be 3:00 PM at the intersection of 179th Street and Grant Street and 179th and Arboretum Drive, as depicted on **Sheet 3** in the Appendix.

Future Growth Rates

Growth rates for the study intersections along 179th Street between Antioch and Metcalf were obtained from the US 69 Express traffic analysis. These growth rates were developed through traffic forecast graphs. The forecast graphs were created using available information along the US 69 corridor, including historical count data, MARC Travel Demand Model (TDM), Overland Park's TDM, and previous studies. A growth rate of 5.5% was developed for intersections along 179th Street and a growth rate of 2.68% was developed for volumes along the US 69 Freeway. West of Antioch, the PES used a growth rate of 5% along 179th Street and a rate of 2.5% for traffic turning to and from Grant Street to the north. These growth rates were used to develop a set of balanced traffic volumes along 179th Street for the future design year of 2050.

Future Traffic Volumes

The existing 2019 traffic volumes were projected to the future year 2050 using the traffic volume growth rates discussed above. At the time these volumes were developed, the 2050 Future Build volumes from the US 69 Express traffic analysis were not developed. To account for more traffic using US 69 once the managed lane was added to the freeway, an additional 5% growth factor was applied to these volumes to develop the future 2050 traffic volumes used in the capacity analyses.

In addition, the Overland Park Arboretum will undergo an expansion prior to the future design year of 2050. This will include a new visitor's center and a new driveway that will connect to 179th Street at the Grant Street intersection. This connection will provide full access to 179th Street, while the existing entrance will be converted into a right- in, right-out (RIRO) driveway. To account for the reconfiguration of the Arboretum access, the future volumes were shifted between the two locations based projected traffic patterns and engineering judgement. The future AM and PM peak hour traffic volumes along the 179th Street corridor are shown on **Sheet 8** in the Appendix. In addition to the peak commuter periods, the future 2050 school dismissal peak hour volumes at the intersection of 179th Street and Grant and 179th Street and Arboretum Drive are also shown on **Sheet 9** in the Appendix.

Capacity Analyses

Intersection capacity analyses were completed using Vissim (version 2021), Synchro (version 11), and Sidra (version 9) analysis software. The Level of Service (LOS) for the study intersections were determined as described in the Highway Capacity Manual (HCM), 6th Edition. LOS is a system of ranking intersection performance using average stop delay per vehicle as the evaluation criteria (expressed as seconds of delay per vehicle, or sec/veh). The HCM LOS rankings are displayed in Table 1. For this report, acceptable levels of service were considered LOS D, or better as outlined in Overland Park's "Traffic Impact Guidelines" dated October 2022. For signalized intersection, the LOS reflects the operation of the intersection as a whole. While varying movements may operate with varying LOS ratings, this is largely a function of the signal timings, the number of lanes, and how the intersection is operating relative to other signals in the vicinity. For unsignalized intersections and roundabouts, the worst movement delay and respective LOS will be taken as the entire intersection delay and LOS.

Table 2 – HCM Level of Service

LOS	Average Delay (s/veh)	
	Signalized	Unsignalized
A	≤10	≤10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Existing Traffic Operations

Capacity analyses were completed for the existing conditions using Vissim and Synchro analysis software and reported in accordance with HCM methodology. The study intersections were analyzed using the existing geometrics and traffic control devices shown on **Sheet 1** in the Appendix.

In the existing conditions, every intersection is measured using the unsignalized levels of service. For both AM and PM peak periods, all intersection operated at an LOS of D or better. **Sheets 4**, **5**, and 6 in the Appendix display the existing level of service for each intersection during the AM, PM, and school dismissal peak periods, respectively.

Future Year 2050 Traffic Operations

Capacity analyses were completed for the future year 2050 using Vissim, Synchro, and Sidra analysis software and reported in accordance with HCM methodology. The future study intersections were analyzed using the future lane configurations and traffic control devices shown on **Sheet 7** in the Appendix.

Through the interchange screening process, the preferred configuration for the 179th Street and US 69 interchange was determined to be a standard diamond with the ramp terminals operating under signal control. This interchange configuration was developed in conjunction with the US 69 Express project. It was included in the Break-in-Access request for that project, which was approved by the Kansas Department of Transportation (KDOT) in February 2022. See Appendix B for the approval letter from KDOT.

The South Overland Park Transportation Plan published in February 2015 identified roundabouts as the preferred intersection control type in the future at the major intersections along 179th Street. Based on this information, roundabouts were analyzed at Grant Street, Antioch Road, and Metcalf Avenue. A roundabout has already been studied and is being planned at the 179th and Switzer Road intersection as part of the Switzer Road project. A LOS overview for each study intersection can be seen on **Sheets 10**, **11**, and **12** in the Appendix for the Future AM, PM, and school dismissal peak hours, respectively.

179th Street and Grant Street

Capacity analyses were completed for the study intersection of 179th Street and Grant Street for a roundabout configuration using Sidra. Based on the analysis, the roundabout is projected to operate at LOS E during the AM peak hour, LOS F during the School peak hour, and LOS B during the PM peak hour. Long queues are expected on the eastbound roundabout approach during the AM peak hour.

179th Street and Arboretum Drive

The intersection of 179th Street and Arboretum Drive was analyzed using Synchro with a right-in right-out (RIRO) configuration and stop control on the northbound intersection approach. Based on this analysis, the intersection is projected to operate at a LOS D in the AM peak hour, LOS D in the School peak hour, and LOS C in the PM peak hour.

179th Street and Antioch Road

Capacity analyses were completed for the 179th Street and Antioch Road intersection with a roundabout configuration using Vissim. Based on the roundabout capacity analysis, both AM and PM peak hours are projected to operate at a LOS F. Long queues are expected on the eastbound roundabout approach during the AM and PM peak hours. The westbound roundabout approach is expected to have long queues only during the AM peak hour.

179th Street and US 69 Interchange

The interchange ramp intersections were both analyzed under traffic signal control using Vissim. Based on the analysis, the southbound ramps intersection is projected to operate at LOS B during both the AM and PM peak hours, and the northbound ramps intersection is projected to operate at LOS C in the AM peak hour and LOS B in the PM peak hour.

179th Street and Metcalf Avenue

Capacity analyses were completed for the 179th Street and Metcalf Avenue intersection with a roundabout configuration using Vissim. Based on the roundabout capacity analysis, the AM and PM peak hours are projected to operate at a LOS A and B, respectively.

Summary

The future traffic projections used along 179th Street are aggressive but provide a conservative estimate for the future traffic volumes along the corridor. The future traffic volumes indicate that a six-lane section may be warranted along 179th Street in the future. However, through discussions with City staff, it was determined that this study should include a four-lane section in case the future traffic projections are not as aggressive as the study predicts. Furthermore, many of the roundabouts analyzed along 179th Street operate at unacceptable LOS during at least one of the peak hours. This is a result of the aggressive traffic projections used along 179th Street. Through discussions with City staff, the roundabouts were considered in the PES for planning purposes to ensure that the city has sufficient right-of-way to construct them in case the future traffic projections are not as aggressive as the study predicts.

In the future, the traffic projections should be reviewed as part of the final design of the corridor to verify the appropriate number of lanes and type of intersection control. If the future traffic projections are accurate, a four-lane section may operate over capacity and the proposed

roundabouts may be insufficient. This would indicate that a six-lane section may be needed along 179th Street along with traffic signals at the intersections

Existing Land Use

The properties adjacent to 179th Street include small subdivisions and a mix of small and large tracts of land. The zoning for the north side of 179th Street includes agricultural, residential, and commercial. The zoning for the south side of 179th Street primarily includes agricultural, residential, and recreation. The Gladacres South and Gladacres Meadows subdivisions are located on the north side of 179th Street between Quivira Road and Switzer Road. The Paradise Farms and Wolf Valley subdivisions are located on the south side of 179th Street between Quivira Road and Switzer Road. The Arbor View neighborhood and Wolf Springs Elementary school are located in the northwest corner of the 179th Street and Antioch Road intersection. The St. Francis Episcopal Church is located on the northwest corner of the 179th Street and Metcalf Avenue intersection. The Overland Park Arboretum & Botanical Gardens is located on the south side of 179th Street between Switzer Road and Antioch Road.

Existing Vertical Alignments

179th Street is currently signed for 45 mph. Based on the 2018 AASHTO design criteria, there are two sag curves that do not meet standard sight distance for 45 mph. The vertical alignment will need modified to meet the proposed 45 mph design speed. Sag curves will need raised or the addition of street lights in order to be able to use comfort criteria. Existing 179th Street crest curves meet standards set forth in AASHTO design criteria for 45 mph.

Existing Drainage

179th Street has open ditches with six locations that are concrete lined, draining surface runoff to two major crossroad structures. Nineteen existing drainage structures cross 179th Street. Structure sizes and locations can be found in the table below.

Existing Structure Location	Size
Sta. 383+29	42” RCP
Sta. 390+75	72” RCP
Sta. 392+41	18” RCP
Sta. 395+92	36” RCP
Sta. 414+89	36” RCP
Sta. 416+32	24" RCP
Sta. 421+22	36" RCP
Sta. 428+54	30" RCP
Sta. 431+00	30" RCP
Sta. 441+00	36" RCP

Existing Structure Location	Size
Sta. 447+22	36" RCP
Sta. 467+10	54" RCP
Sta. 471+65	60" RCP
Sta. 477+24	6' x 6' RCB
Sta. 491+57	5' x 5' RCB
Sta. 494+20	36" RCP
Sta. 501+00	24" CMP
Sta. 503+00	30" CMP
Sta. 516+94	36" CMP

The majority of these structures cannot pass a 100-year event. None of these structures are long enough to accommodate the proposed typical section with adequate clear zone.

179th Street crosses Wolf Creek just west of the interchange with US-69. Wolf Creek is a major tributary to the Blue River and is mapped by the Federal Emergency Management Agency (FEMA) as having a regulatory Zone AE1% annual chance floodplain and floodway. The confluence of Wolf Creek and Coffee Creek, just downstream (north) of 179th is the beginning of the Blue River.

For this study, hydraulic modeling was based on the "Blue River Watershed Study" addendum dated December 2005, with the existing conditions updated to reflect the current 179th Street bridge (which had not been constructed at the time the study's modeling was completed in approximately 2001) based on ground survey obtained for this study. The existing 179th Street Wolf Creek bridge structure's elevation does not meet minimum elevation requirement for overtopping (to convey the 100-year), does not provide 2' of freeboard from the low chord to the HL and does not pass the 100-year storm according to existing conditions modeling and Johnson County Stormwatch data which indicates stage data that a storm in August of 2017 would have reached at least the shoulder of 179th Street at the lowpoint.

The modeled existing conditions 100-year water surface at the bridge is 917.88.

Existing Lakes and Ponds

There are several private ponds adjacent to 179th Street along the corridor, but only one is shown to be impacted by the widening of 179th Street. The following private ponds along the corridor are not anticipated to be impacted by the proposed improvements.

- North side of 179th Street approximately 45' east of Quivira Road. (to be removed with Quivira Road and 179th Street Intersection Improvements, Project No. TH-1147)
- North side of 179th Street approximately 360' feet west of S Bond Street.
- South side of 179th Street approximately 400' east of Bond Avenue.
- North side of 179th Street approximately 500' east of S Bond Street.
- North side of 179th Street approximately 70' west of Switzer Road.
- North side of 179th Street approximately 1,300' east of Switzer Road.
- South side of 179th Street approximately 1,400' east of Switzer Road.

A private pond located on the north side of 179th Street approximately 1,200' west of the US-69 interchange is anticipated to be impacted by the proposed improvements and require it to be drained and mucked. Further analyzed during final design will be required to minimize impacts to these ponds.

Existing Utilities

The major utilities in the study area are telephone, fiber optic, water, power, gas, and sanitary sewers. These utility lines are shown on the plan drawings in the Appendix and are described in the following section. Note that all utility locations were obtained through AIMS and from utility owner maps and have not been field verified.

Atmos

Atmos has a gas line (unknown size) along the north side of 179th Street from Quivira Road to just west of Bond Avenue where it crosses 179th Street and runs along the south side over to Switzer Road. There's a 4-inch gas line running along the north side of 179th Street from Switzer Road to Kessler Street. All lines appear to be within existing right-of-way.

AT&T

AT&T has buried fiber optic facilities along the south side of 179th Street from Quivira Road to Switzer Road and on the north side of 179th Street from Switzer Road to Metcalf Avenue. All lines appear to be within existing right-of-way.

Evergy

Evergy Distribution has overhead power lines that run along the north side of 179th Street from Quivira Road to Metcalf Avenue. All distribution lines appear to be within existing right-of-way, but anticipate they were in a prior easement and compensable. There is also an Evergy Transmission overhead crossing about 600' west of Metcalf Avenue that runs north-south. There's an existing transmission line pole located about 25' south of the existing 179th Street roadway.

Blue Valley School District

The Blue Valley School District has buried fiber optic facilities that run along the north side of 179th Street from Quivira Road to the east side of the US-69 northbound ramps. All lines appear to be within existing right-of-way.

Charter Communications (Spectrum)

Charter has aerial lines on the north side of 179th Street within the project limits.

Kansas Gas Service

Kansas Gas Service has a 4" line that runs along the north side of 179th Street from Antioch Road to approximately 750' west of US-69 where the line crosses to the south side of 179th Street and switches to a steel line that runs east until the NB US-69 ramps where it crosses back to the north and increases to a 6" steel line and goes east to Metcalf Avenue. A gas line of unknown size runs along the east side of Metcalf Avenue through the limits of the project. It's estimated that the steel lines are within existing right-of-way and are non-compensable, and that the 4" plastic lines are within easement and are compensable.

Kansas Fiber Network

The Kansas Fiber Network has buried fiber optic facilities that run along the south side of 179th Street. The facilities run along the west side of Antioch Road where it then crosses 179th Street until reaching the west side of Antioch Road where it then runs south. All lines appear to be within existing right-of-way.

Lumen

Lumen has buried fiber optic facilities along the west side of US-69 and the US-69 SB ramps. The facilities cross 179th Street from the SB entrance ramp to the SB exit ramp. All lines appear to be within existing right-of-way.

WaterOne

WaterOne has a 24" main line that runs along the south side of 179th Street from Quivira Road to Wolf Creek where the line then crosses to the north side of 179th Street. The line runs along the north side of 179th Street through the limits of the US-69 ramps and then crosses back to the south side of 179th Street and continues to Metcalf Avenue.

There's an 8" line that runs along the north side of 179th Street from Quivira Road to Bluejacket Street where it crosses to the south side of 179th Street over to Switzer Road. There are 6" lines that branch off to the previously mentioned 8" line for service along both Bond Avenue and Goddard Street.

There's a line that branches off the 179th Street 24" line that runs north along the west side of Grant Street. Along Antioch Road there's a 12" line that runs along the west side of the road. Further east, there's a branch that comes off the 179th Street line and runs north along the east side of Kessler Street. There's a line that runs along the west side of Metcalf Place and continues south along the west side of Metcalf Avenue. There's also a line on the east side of Metcalf Avenue. All lines appear to be outside of existing right-of-way and in private easement.

PRELIMINARY DESIGN

Design Criteria

Roadway	179th Street Antioch Road	Metcalf Avenue	Grant Street	Kessler Street Bond Avenue Bluejacket Street Goddard Street	Design Standard Source
Typical Sections					
Classification	Thoroughfare	Thoroughfare	Collector	Local	
Min. R/W Width (Ft)	120	120	60	50	OPDC Section II-A
*Design Speed (mph)	45	45	30	25	OPDC Section II-A
Min. Lane Widths (Ft)	11	11	16	12	Provided by City
Typical Side Slopes	4:1	4:1	4:1	4:1	Provided by City
Min. Sidewalk Width (Ft)	5	N/A	5	5	OPDC Section II-A
Max. SUP Width (Ft)	10	N/A	10	10	OPDC Section II-A
Bike Lane Width (Ft)	6	N/A	N/A	N/A	Provided by City
Geometrics					
Min. Horizontal Radius	1050'	1050'	350'	200'	OPDC Section II-A
Max. Gradient	6%	6%	8%	8%	OPDC Section II-A
Min. Gradient	1%	1%	1%	1%	OPDC Section II-A
Vertical Curve					
Min. K Value (Crest)	61	61	19	12	AASHTO Section 3.4.6
Min. K Value (Sag)	79	79	37	26	AASHTO Section 3.4.6
Minimum Stopping Sight Distance	360'	360'	200'	155'	OPDC Section II-A
Min. Cross Slope	2.0%	2.0%	2.0%	2.0%	OPDC Section II-A
Vert Clear under Highway	16'4"	N/A	N/A	N/A	KDOT Section 7.2.1
Drainage					
Cross-road culvert design storm	2%				OPDC Section II-B
Cross-road culvert design storm (low point)	1%				OPDC Section II-B
Ditches	10%				OPDC Section II-B

*Posted speed and design speed are equal.

OPDC = 2021 Overland Park Design and Construction Standards, Volume 1 - Design Criteria

AASHTO = 2018 AASHTO - A Policy on Geometric Design of Highways and Streets (Greenbook)

KDOT = KDOT Design Manual, Volume I (Part A & B), Road Section (Revised May 2014)

Interchange Analysis

An interchange evaluation was performed in order to determine the best interchange type for US-69 and 179th Street and obtain a Break-in-Access (BIA) approval from KDOT for a modification to the interchange.

The interchange analysis addressed the requirements for access to the interstate system identified in the Federal Register dated May 22, 2017 regarding access breaks. An Interchange Selection Study (ISS) was performed to determine a preferred alternative for this interchange. The preliminary analysis occurred in two phases. Phase 1 considered a variety of interchange types with the intent to narrow potential solution through a qualitative evaluation process. The following potential interchange configurations were considered as part of this first phase:

- Diamond Interchange
- Modified Partial Cloverleaf Interchange
- Diverging Diamond Interchange (DDI)
- Modified Diamond with Roundabout Interchange
- Displaced Left Interchange
- Single Point Urban Interchange

Through this qualitative evaluation, the Modified Partial Cloverleaf, Modified Diamond with Roundabouts, Displaced Left, and Single Point Urban Interchanges were dismissed. The remaining two alternatives, the Diamond and the Diverging Diamond were selected to move forward into Phase 2 of the Interchange Selection Study.

Phase 2 of the Interchange Selection Study then analyzed a Modified Diamond interchange and a Diverging Diamond interchange in more detail. The Modified Diamond Interchange was selected as the preferred alternative. This alternative was selected based on improved LOS, safety, maintenance of traffic, and project phasing flexibility. This alternative also provided the City with the greatest flexibility in implementing its Safe Bicycle Use Outreach program.

The BIA was submitted through the 69Express project BIA and received approval from KDOT on February 21, 2022. This approval letter is shown in the appendix.

Roadway

The existing alignment for US-69 was reestablished for the 69Express project and used for the interchange analysis. US-69 was raised and the superelevation of 3.6% was held out of the curve over 179th Street in order to accommodate a minimum of 16'-4" clearance over 179th Street. This requires approx. ½ mile of US-69 to be reconstructed to revise the vertical grade. The four ramps were lengthened to accommodate KDOT criteria. The roadway width used for US-69 was 2-12' travel lanes, 1-10' outside shoulder, and 1-6' inside shoulder.

Drainage

There are seven open ditches located on the outside of the US-69 ramps. One ditch on the West side of the Southbound US-69 Highway to 179th Street ramp and one ditch on the East side of the Northbound 179th Street to US-69 Highway ramp. In both of these ditches, flow is directed

toward 179th Street. Area inlets will capture this flow and outlet into the enclosed system along 179th Street. There are three ditches on the West side of the Southbound 179th Street to US-69 Highway ramp, directing flow toward two existing streams. There are two ditches along the East side of the Northbound US-69 Highway to 179th Street ramp, directing flow toward two existing streams.

Bridges

The existing US-69 bridges will be replaced with twin structures to allow for staged construction. Two-span, steel composite beam bridges are proposed for the overpass of 179th Street. This structure type was selected to accommodate a 16'-4" vertical clearance over the roadway below. Retaining walls will be required in front of each abutment to reduce overall bridge length. Location of bridge structures are shown on the plan and profile sheets in the Appendix.

Typical sections of the bridge structures are shown in Appendix D. The bridges have 42' roadways and F-shape barriers. Roadway width includes 2-12' travel lanes, 1-12' outside shoulder, and 1-6' inside shoulder. The bridge will have an approximate maximum structure depth of 3.75'.

Typical Sections

The typical sections for the proposed roadways are shown in the plans in Appendix D. The 179th Street section is 9" concrete pavement (NRDJ) over 6" aggregate base course (AB-3 OP Modified) with an 8" fly ash treated subgrade. The sections include a 24' Back-to-Back raised median section, a 10' wide asphalt trail located 6' off the north back of curb and a 10' wide asphalt trail located 6' off the south back of curb. The roadway width consists of 2 – 11' lanes and a 6' bike lane in each direction. The median curbs will be 1'-6" Type E Curb and outside curbs will be 2' Type B Curb and Gutter. 4:1 cut and fill slopes were used in all areas except near the existing private ponds approximately 1,400' east of Switzer Road where 3:1 slopes are used to avoid grading into the ponds. Slopes of 2:1 were used through rock cut limits to show rock excavation. Slopes may be able to be steeper in this rock cut, but Geotech would need to be performed to confirm allowable slope and necessary benching.

The bridge typical section for 179th Street over Wolf Creek is shown in the Appendix. Twin Reinforced Concrete Haunch Slab bridges are proposed. The bridges have 32' roadways, 1' corral rail, and sidewalks accommodated on both sides with pedestrian fences. The roadway width includes 2-11' travel lanes and a 6' bike lane. The bridge will have an approximate maximum structure depth of 4'.

Right-of-Way

Right-of-way requirements are indicated on the plan drawings in the Appendix and on the typical section on page 2 of the plans in the Appendix. 179th Street will include a 120' minimum right-of-way corridor, 40' north of the section line and 80' south of the section line between Quivira Road and Switzer Road and 60' on either side of the section line between Switzer Road and Metcalf Avenue. Permanent drainage easements will be necessary for stormwater drainage

facilities and at the end of the crossroad drainage structures. Temporary construction easements will be necessary along most properties adjacent to construction. Permanent easements may be necessary to accommodate utility relocations. The final locations of the proposed utility easements should be determined during the project design phase when more accurate utility information is available.

Horizontal Alignments

Various alternative alignments were considered for 179th Street including the City's standard section centered on the section line, the City's standard section centered on the section line with a 65-foot shift south at Wolf Creek, and the City's standard section centered on the section line with a 45-foot shift south and a narrow 4-foot median at Wolf Creek.

After analyzing these three alternative alignments, it was determined that maintaining the alignment on the section line provided the best balance between impacts to the rock cut on the south side of 179th Street and the stream on the north side. In addition to this alternative, an approx. 500-foot RCB was added along the north side of 179th Street to convey the stream and minimize impacts to the adjacent property. A standard thoroughfare section, centered on the section line, is recommended for 179th Street as shown in the Appendix. The only exception to this being from Quivira Road to Switzer Road where the standard thoroughfare section is shifted south 20' from the section line to tie into the existing Quivira PES and to center within the existing ROW corridor of 40' north and 80' south of the section line.

Vertical Alignments

The minimum design criteria for thoroughfare type roadways are established in the City of Overland Park Municipal Code and the 2018 edition of "A Policy on Geometric Design of Highways and Streets" published by the American Association of State Highway and Transportation Officials. In order to provide the required Stopping Sight Distance for a thoroughfare, a crest vertical curve requires a minimum "K" value of 84 and a sag vertical curve requires a minimum "K" value of 96 based on headlight sight distance. The requirements for sag vertical curves can use the comfort criteria where street lighting is provided. The requirements for this project are shown in the Design Criteria section of this report. The vertical alignment for 179th Street was developed to meet the minimum design criteria for 45 mph.

A preliminary profile for 179th Street was developed that will accommodate roundabouts at Grant Street, Antioch Road, and Metcalf Avenue and is included in the Appendix. A previous preliminary engineering study was developed for Quivira Road that included a roundabout at the 179th Street intersection. Another previous preliminary engineering study was developed for Switzer Road that included a roundabout at the 179th Street intersection. A recent project constructed two lanes of 179th St from US-69 to Metcalf Avenue that set the profile for the ultimate four lane roadway. The vertical alignment for 179th Street was set to match these study profiles at Quivira Road and Switzer Road and the ultimate 179th Street profile from US-69 to Metcalf Avenue. Additionally, the 179th Street profile accommodates sufficient clearance (2ft to the HGL) over the Wolf Creek 100-yr storm event and provided the minimum 16'-4" clearance under the US-69 bridges.

Drainage

New drainage structures beneath 179th Street will be reinforced concrete boxes and reinforced concrete pipes. The crossings were designed for a 50-yr storm and checked with a 100-yr storm to ensure the peak runoff (250 cfs or more) does not overtop the roadway. The proposed drainage design was developed using the Rational Method, as defined in the American Public Works Association Standard Specifications and Design Criteria. Area inlets are utilized at the upstream end of crossings in 4 locations to reduce culvert slopes and limit discharge velocity. Area inlets collecting off-site flow into an enclosed system are utilized at the intersection of 179th Street and Antioch Road to limit culvert depths underneath the road. It should be noted that in the future design of an enclosed system, additional curb inlets beyond what would typically be expected will be needed along the south side of 179th Street between Sta. 488+00 and Sta. 491+00. A ditch cannot fit between the proposed roadway section and the existing rock cliff. Therefore, the additional curb inlets will collect the excess off-site flow.

Open ditches are placed in 21 locations along 179th Street to direct storm flow away from the proposed roadway fill. Open ditches are also specified in 7 locations around the ramps of the US-69 & 179th Street interchange. Locations of the crossroad structures and open ditches can be found in the Plan and Profile sheets. Some open ditches will drain into the enclosed system, which is not shown in the conceptual plans.

The proposed Wolf Creek bridge utilizes 4 spans with a configuration of 54’-72’-72’-54’. The proposed water surface is 916.49 for the future conditions 100-year storm.

There are ten drainage structure crossings along 179th Street. Hydrology utilized ultimate conditions land use. The details for each structure are tabulated below:

Structure Location	**Size**	**Area (acres)**	**C Value**	**Time of Concentration (min)**	**I_{100} (in/hr)**	**Q_{100} (cfs)**
Sta. 383+35	54” RCP	30.9	0.44	23.3	6.2	105.7
Sta. 390+60	7’x5’ RCB	150.9	0.44	36.5	5.0	412.7
Sta. 395+92	36” RCP	19.8	0.44	19.0	6.4	73.6
Sta. 421+47	42" RCP	16.1	0.54	11.1	8.3	90.5
Sta. 429+14	48" RCP	20.1	0.52	13.9	7.6	98.7
Sta. 430+99	30" RCP	0.54	0.30	8.1	9.2	1.7
Sta. 447+22	36" RCP	9.7	0.55	9.4	8.8	58.6
Sta. 477+13	2 - 9' x 5' RCB	95.7	0.55	24.7	6.1	397.3
Sta. 492+10	2 - 8' x 5' RCB	122.6	0.54	26.8	5.8	481.5
Sta. 516+91	54" RCP	13.4	0.79	6.2	9.9	130.4

Stormwater treatment facilities will need to be installed along the roadway in order to provide permanent stormwater quality Best Management Practices (BMP) meeting the requirements of the Overland Park Municipal Code Section 16.210.

Retaining Walls

A possible retaining wall is shown on the north side of 179th Street from station 493+50 to station 495+75 in order to minimize impacts to the adjacent driveway. This retaining wall may be able to be removed in design with the use of steeper backslopes through the rock cut, but additional Geotech is required to determine the feasibility.

A retaining wall is required on the north side of 179th Street from station 519+00 to station 520+25 to avoid impacts to the parking lot on the adjacent property.

Historical Considerations

The Kansas State Historical Society (KSHS) has indicated that "part of the project's Area of Potential Effects lies near a zone of high archeological potential which is located near the perennial drainage of Wolf Creek". The project is in close proximity to several archeological sites associated with Wolf Creek. The proposed project area has not been archeologically surveyed and KSHS requests that a professional archeologist survey of the project area prior to construction.

Permitting

Permits will be required before beginning construction activities on this project. Due to the continually changing nature of permitting requirements, it is recommended the engineer review permitting requirements during the project's preliminary design phase. The following permits may be required and should be investigated.

USACE 404 Permit (Individual or Nationwide)
Kansas DWR Permit
National Pollution Discharge Elimination System (NPDES) Permit
6(f) or Environmental Permit
Federal Aviation Administration Form 7460-1
City Land Disturbance Permit
City Flood Plain Permit
FEMA Conditional Letter of Map Revision (CLOMR)
FEMA Letter of Map Revision (LOMR) (Post-Construction)

One potential wetland has been identified on the north side of 179th Street, approx. station 484+50. It is anticipated that this potential wetland (private pond) will need to be drained and mucked due to work within the construction limits. Wetland mitigation may be required by developing a wetland in another location or paying into a wetland bank. A USACE 404 Individual Permit may be required. The Wolf Creek channel widening should be constructed above the ordinary high water mark as possible. This work may require a USACE 404 permit if work is located below the ordinary high water and a determination will need to be made if this must be an individual permit, or if a Nationwide permit will apply. Due to the timeframe to acquire this permit, this creek widening should be evaluated early in the design process.

Construction

Construction phasing and maintenance of traffic (MOT) during construction are not addressed in this study and will need to be developed during final design. Various locations throughout the corridor will need to be considered during final design including access to the school, church, Arboretum, or any other business or residence along the corridor.

Temporary surfacing will be necessary to maintain access to the properties throughout the corridor. The additional cost of earthwork should also be considered during the sequencing of construction as well as any additional temporary easements needed to maintain access to these properties.

OPINIONS OF PROBABLE COSTS

At the request of the City, preliminary probable cost estimates and other project data have been developed. These probable costs, in addition to previous studies of this area, will assist the City in phasing of roadway construction. All prices are in 2022 dollars.

Preliminary Project Cost

	179th (Quivira to Switzer)	179th (Switzer to Antioch)	179th & Antioch Intersection	179th (Antioch to Metcalf)	Notes
Construction Cost	$10,182,503	$11,716,886	$2,427,640	$35,898,980	Includes 20% Contingency
Estimated Change Orders	$509,125	$585,844	$121,382	$1,794,949	5% of Const. Cost
Engineering Fees	$1,018,250	$1,171,689	$242,764	$3,589,898	10% of Const. Cost
Inspection	$509,125	$585,844	$121,382	$1,794,949	5% of Const. Cost
Material Testing	$101,825	$117,169	$24,276	$358,990	1% of Const. Cost
Project Administration	$203,650	$234,338	$48,553	$717,980	2% of Const. Cost
Legal Publications, Printing, Misc.	$101,825	$117,169	$24,276	$358,990	1% of Const. Cost
Ownership Certificates	$50,913	$58,584	$12,138	$179,495	0.5% of Const. Cost
R/W & Easements	$480,501	$149,571	$93,388	$742,372	See Right-of-Way Costs
Relocation of Utilities	$2,290,000	$2,930,000	$898,000	$3,507,000	See Utility Relocation Costs
Total	**$15,447,718**	**$17,667,094**	**$4,013,799**	**$48,943,602**	

Utility Relocation Costs

Based on preliminary information, it appears several of the existing utilities will need to be relocated. No subsurface investigations of existing facilities were performed during this study. The utilities shown on the plans were obtained through AIMS and from utility owner maps and have not been field verified. During final design additional information should be obtained to evaluate more accurately the possibility of avoiding some of the facilities that were assumed to need relocation in this study. The following tables provide a summary of potential utility

relocations and opinions of relocation costs for those utilities assumed to be in private easement. Utilities without known private easements are shown with a relocation cost of $0.

Summary of Utility Costs

179th St (Quivira to Switzer)

Utility Company	Description	Length (ft)	Cost/ft	Relocation Cost
Atmos Energy	Gas Line (Unknown Size)	1,600	$65	$0*
Atmos Energy	Gas Line (Unknown Size)	3,400	$65	$0*
Evergy	Overhead Power	4,700	$200	$940,000
Evergy	Underground	200	$600	$120,000
Water District No. 1	8” Waterline	1,600	$150	$240,000
Water District No. 1	24” Waterline	1,100	$900	$990,000
			TOTAL	$2,290,000

*Assumed to be non-compensable

179th St (Switzer to Antioch)

Utility Company	Description	Length (ft)	Cost/ft	Relocation Cost
Atmos Energy	4” Gas Line	3,225	$65	$0*
Evergy	Overhead Power	4,900	$200	$980,000
Water District No. 1	12” Waterline	500	$300	$150,000
Water District No. 1	24” Waterline	2,000	$900	$1,800,000
			TOTAL	$2,930,000

*Assumed to be non-compensable

179th St and Antioch Rd Intersection

Utility Company	Description	Length (ft)	Cost/ft	Relocation Cost
Evergy	Overhead Power	1,200	$200	$240,000
Kansas Gas Service	4” Gas Line	200	$65	$13,000
Water District No. 1	12” Waterline	800	$300	$240,000
Water District No. 1	24” Waterline	450	$900	$405,000
			TOTAL	$898,000

*Assumed to be non-compensable

179th St (Antioch to Metcalf)

Utility Company	Description	Length (ft)	Cost/ft	Relocation Cost
Evergy	Overhead Power	5,400	$200	$1,080,000
JCW	15" Sanitary	650	$250	$162,500
Kansas Gas Service	4" Gas Line (Steel)	850	$65	$0*
Kansas Gas Service	6" Gas Line (Plastic)	2,300	$65	$149,500
Kansas Gas Service	6" Gas Line (Steel)	1,850	$80	$0*
Water District No. 1	24" Waterline	2,350	$900	$2,115,000
			TOTAL	$3,507,000

*Assumed to be non-compensable

Right-of-Way Costs

Additional right-of-way and easements will be required for these projects as summarized below. All right-of-way costs are based on information obtained from the City of Overland Park. Costs include right-of-way, drainage, utility, and temporary construction easements. Actual ROW cost will be determined through the appraisal process during final design.

The following unit costs were used to develop the proposed right-of-way costs for the different sections:

Platted

Right-of-Way	$4.00 per square foot
Permanent Drainage Easement	$3.00 per square foot
Permanent Utility Easement	$2.00 per square foot
Temporary Construction Easement	$1.00 per square foot

Unplatted

Right-of-way	$2.00 per square foot
Permanent Drainage Easement	$1.50 per square foot
Permanent Utility Easement	$1.00 per square foot
Temporary Construction Easement	$0.50 per square foot

Summary of Right-of-Way Costs

179th St (Quivira to Switzer)

Tract No.	Platted / Unplatted	Type	Area (SF)	Unit Cost	Approx. Cost
1	Unplatted	R/W	-	$ 2.00	$ -
		PUE	2,972	$ 1.00	$ 2,972
		TCE	6,903	$ 0.50	$ 3,452
2	Unplatted	R/W	-	$ 2.00	$ -
		PUE	6,638	$ 1.00	$ 6,638
		TCE	17,345	$ 0.50	$ 8,673
3	Platted	R/W	-	$ 4.00	$ -
		PUE	4,177	$ 2.00	$ 8,354
		TCE	10,440	$ 1.00	$ 10,440
4	Platted	R/W	-	$ 4.00	$ -
		PDE	2,185	$ 3.00	$ 6,555
		PUE	6,702	$ 2.00	$ 13,404
		TCE	23,597	$ 1.00	$ 23,597
5	Platted	R/W	-	$ 4.00	$ -
		PDE	1,322	$ 3.00	$ 3,966
		PUE	354	$ 2.00	$ 708
		TCE	3,989	$ 1.00	$ 3,989
6	Platted	R/W	-	$ 4.00	$ -
		PDE	2,691	$ 3.00	$ 8,073
		PUE	3,040	$ 2.00	$ 6,080
		TCE	14,080	$ 1.00	$ 14,080
7	Platted	R/W	162	$ 4.00	$ 648
		PDE	3,023	$ 3.00	$ 9,069
		PUE	2,601	$ 2.00	$ 5,202
		TCE	12,365	$ 1.00	$ 12,365
8	Platted	R/W	1,577	$ 4.00	$ 6,308
		PUE	3,532	$ 2.00	$ 7,064
		TCE	12,088	$ 1.00	$ 12,088
9	Platted	R/W	930	$ 4.00	$ 3,720
		PUE	1,424	$ 2.00	$ 2,848
		TCE	3,036	$ 1.00	$ 3,036
10	Platted	R/W	750	$ 4.00	$ 3,000
		PUE	910	$ 2.00	$ 1,820
		TCE	1,783	$ 1.00	$ 1,783
11	Platted	R/W	1,076	$ 4.00	$ 4,304
		PUE	1,032	$ 2.00	$ 2,064
		TCE	2,500	$ 1.00	$ 2,500
12	Platted	R/W	6,704	$ 4.00	$ 26,816
		PUE	7,985	$ 2.00	$ 15,970
		TCE	14,981	$ 1.00	$ 14,981

Tract No.	Platted / Unplatted	Type	Area (SF)	Unit Cost	Approx. Cost
13	Platted	R/W	-	$ 4.00	$ -
		PUE	1,814	$ 2.00	$ 3,628
		TCE	-	$ 1.00	$ -
41	Platted	R/W	-	$ 4.00	$ -
		TCE	5,756	$ 1.00	$ 5,756
42	Platted	R/W	-	$ 4.00	$ -
		PUE	5,120	$ 2.00	$ 10,240
		TCE	12,795	$ 1.00	$ 12,795
43	Platted	R/W	-	$ 4.00	$ -
		PUE	4,818	$ 2.00	$ 9,636
		TCE	15,577	$ 1.00	$ 15,577
44	Platted	R/W	-	$ 4.00	$ -
		PDE	2,566	$ 3.00	$ 7,698
		PUE	4,181	$ 2.00	$ 8,362
		TCE	21,381	$ 1.00	$ 21,381
45	Platted	R/W	-	$ 4.00	$ -
		PUE	3,347	$ 2.00	$ 6,694
		TCE	11,259	$ 1.00	$ 11,259
46	Platted	R/W	-	$ 4.00	$ -
		PDE	2,913	$ 3.00	$ 8,739
		PUE	2,200	$ 2.00	$ 4,400
		TCE	9,276	$ 1.00	$ 9,276
47	Platted	R/W	-	$ 4.00	$ -
		PUE	2,897	$ 2.00	$ 5,794
		TCE	8,696	$ 1.00	$ 8,696
48	Platted	R/W	-	$ 4.00	$ -
		PDE	1,988	$ 3.00	$ 5,964
		PUE	4,056	$ 2.00	$ 8,112
		TCE	9,335	$ 1.00	$ 9,335
49	Platted	R/W	-	$ 4.00	$ -
		PUE	4,746	$ 2.00	$ 9,492
		TCE	7,101	$ 1.00	$ 7,101
50	Platted	R/W	-	$ 4.00	$ -
		PUE	3,298	$ 2.00	$ 6,596
		TCE	6,601	$ 1.00	$ 6,601
51	Platted	R/W	-	$ 4.00	$ -
		PUE	3,297	$ 2.00	$ 6,594
		TCE	4,950	$ 1.00	$ 4,950
52	Platted	R/W	-	$ 4.00	$ -
		PUE	3,241	$ 2.00	$ 6,482
		TCE	2,777	$ 1.00	$ 2,777
	SUB-TOTAL				**$ 480,501**

179th St (Switzer to Antioch)

Tract No.	Platted / Unplatted	Type	Area (SF)	Unit Cost	Approx. Cost
14	Platted	R/W	31,228	$ -	$ -
		PDE	4,392	$ -	$ -
		PUE	32,089	$ -	$ -
		TCE	146,766	$ -	$ -
35	Platted	R/W	-	$ 4.00	$ -
		TCE	18,320	$ 1.00	$ 18,320
36	Platted	R/W	-	$ 4.00	$ -
		TCE	8,075	$ 1.00	$ 8,075
36A	Platted	R/W	-	$ 4.00	$ -
		TCE	287	$ 1.00	$ 287
37	Platted	R/W	-	$ 4.00	$ -
		TCE	678	$ 1.00	$ 678
38	Platted	R/W	-	$ 4.00	$ -
		PDE	1,385	$ 3.00	$ 4,155
		TCE	11,528	$ 1.00	$ 11,528
39	Platted	R/W	7,464	$ 4.00	$ 29,856
		TCE	5,374	$ 1.00	$ 5,374
40	Unplatted	R/W	8,328	$ 2.00	$ 16,656
		PDE	4,604	$ 1.50	$ 6,906
		PUE	13,829	$ 1.00	$ 13,829
		TCE	67,814	$ 0.50	$ 33,907
	SUB-TOTAL				**$ 149,571**

179th St (Antioch Intersection)

Tract No.	Platted / Unplatted	Type	Area (SF)	Unit Cost	Approx. Cost
14	Platted	R/W	5,191	$ -	$ -
		PUE	1,069	$ -	$ -
		TCE	16,038	$ -	$ -
15	Unplatted	R/W	3,083	$ 2.00	$ 6,166
		PDE	3,396	$ 1.50	$ 5,094
		TCE	15,019	$ 0.50	$ 7,510
32	Unplatted	R/W	13,325	$ 2.00	$ 26,650
		PUE	2,235	$ 1.00	$ 2,235
		TCE	18,744	$ 0.50	$ 9,372
34	Platted	R/W	1,612	$ 4.00	$ 6,448
		PDE	1,469	$ 3.00	$ 4,407
		TCE	25,506	$ 1.00	$ 25,506
	SUB-TOTAL				**$ 93,388**

179th St (Antioch to Metcalf)

Tract No.	Platted / Unplatted	Type	Area (SF)	Unit Cost	Approx. Cost
15	Unplatted	R/W	-	$ 2.00	$ -
		PDE	10,255	$ 1.50	$ 15,383
		TCE	22,571	$ 0.50	$ 11,286
16	Unplatted	R/W	31,010	$ 2.00	$ 62,020
		TCE	-	$ 0.50	$ -
17	Unplatted	R/W	34,869	$ 2.00	$ 69,738
		TCE	-	$ 0.50	$ -
18	Unplatted	R/W	7,007	$ 2.00	$ 14,014
		TCE	-	$ 0.50	$ -
19	Unplatted	R/W	3,998	$ 2.00	$ 7,996
		PUE	3,242	$ 1.00	$ 3,242
		TCE	7,150	$ 0.50	$ 3,575
20	Unplatted	R/W	-	$ 2.00	$ -
		PUE	503	$ 1.00	$ 503
		TCE	1,063	$ 0.50	$ 532
21	Unplatted	R/W	-	$ 2.00	$ -
		PUE	3,774	$ 1.00	$ 3,774
		TCE	7,404	$ 0.50	$ 3,702
22	Unplatted	R/W	3,378	$ 2.00	$ 6,756
		PDE	1,750	$ 1.50	$ 2,625
		PUE	4,658	$ 1.00	$ 4,658
		TCE	17,541	$ 0.50	$ 8,771
23	Platted	R/W	4,935	$ 4.00	$ 19,740
		TCE	4,307	$ 1.00	$ 4,307
24	Unplatted	R/W	2,257	$ 2.00	$ 4,514
		TCE	3,077	$ 0.50	$ 1,539
25	Unplatted	R/W	431	$ 2.00	$ 862
		PUE	4,916	$ 1.00	$ 4,916
		TCE	27,420	$ 0.50	$ 13,710
26	Unplatted	R/W	40,520	$ 2.00	$ 81,040
		PUE	6,427	$ 1.00	$ 6,427
		TCE	23,584	$ 0.50	$ 11,792
27	Unplatted	R/W	62,655	$ 2.00	$ 125,310
		TCE	25,276	$ 0.50	$ 12,638
28	Unplatted	R/W	14,650	$ 2.00	$ 29,300
		PDE	19,439	$ 1.50	$ 29,159
		PUE	6,398	$ 1.00	$ 6,398
		TCE	56,903	$ 0.50	$ 28,452
29	Unplatted	R/W	10,067	$ 2.00	$ 20,134
		PDE	25,080	$ 1.50	$ 37,620
		PUE	4,173	$ 1.00	$ 4,173
		TCE	24,042	$ 0.50	$ 12,021

Tract No.	Platted / Unplatted	Type	Area (SF)	Unit Cost	Approx. Cost
30	Unplatted	R/W	10,981	$ 2.00	$ 21,962
		PDE	4,709	$ 1.50	$ 7,064
		PUE	6,625	$ 1.00	$ 6,625
		TCE	35,505	$ 0.50	$ 17,753
31	Unplatted	R/W	1,160	$ 2.00	$ 2,320
		PDE	3,290	$ 1.50	$ 4,935
		PUE	2,944	$ 1.00	$ 2,944
		TCE	12,292	$ 0.50	$ 6,146
	SUB-TOTAL				**$ 742,372**

Construction Costs

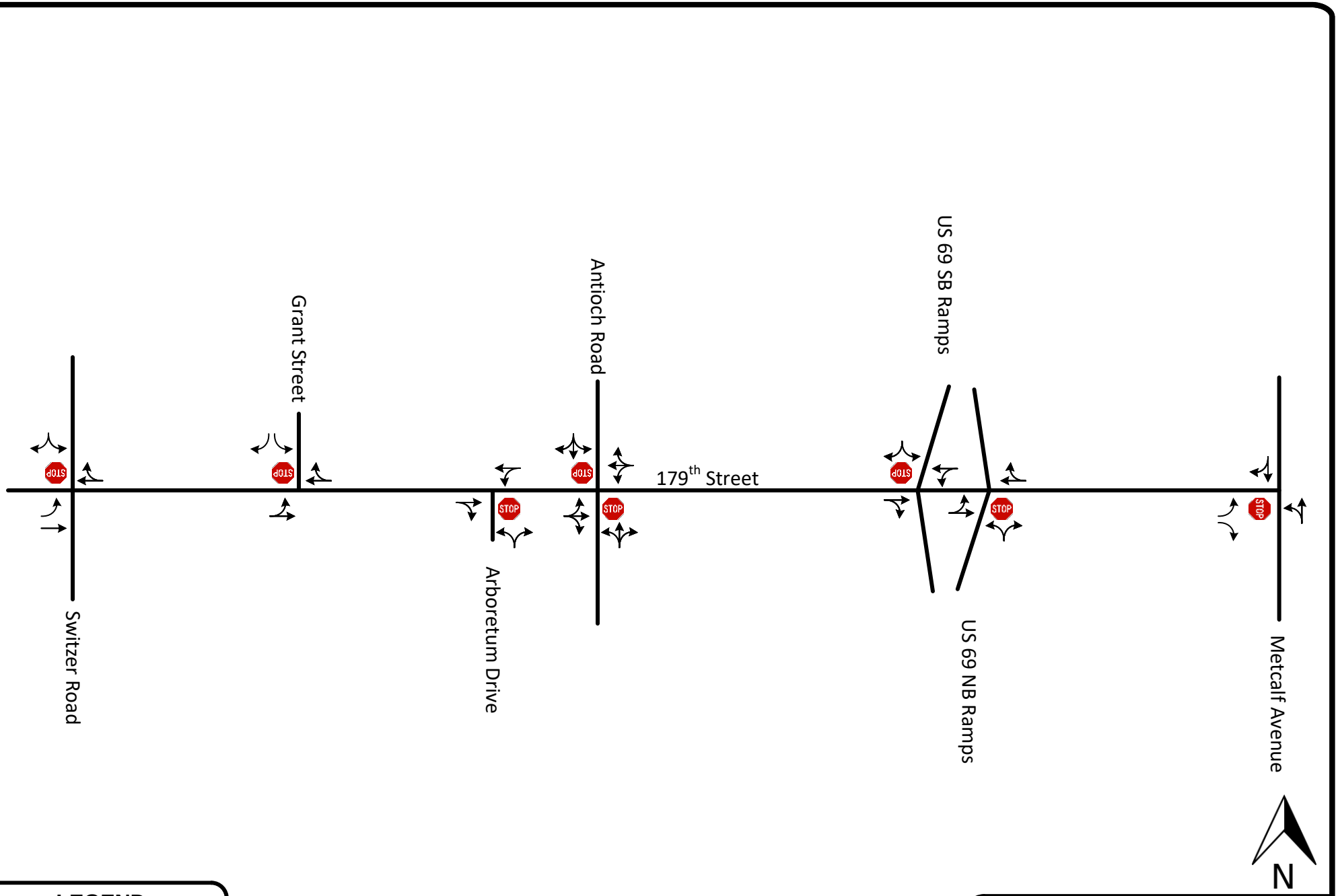
Detailed preliminary opinions of probable cost are shown on the following pages. Separate quantities and construction costs have been figured for each of the following:

- 179th Street (Quivira Road to Switzer Road)
- 179th Street (Switzer Road to Antioch Road)
- 179th Street & Antioch Road Intersection
- 179th Street (Antioch Road to Metcalf Avenue)

Item No.	Item	Unit	Unit Price	179th (Quivira to Switzer)		179th (Switzer to Antioch)		179th & Antioch Intersection		179th (Antioch to Metcalf)	
				Approx. Quantity	Total	Approx. Quantity	Total	Approx. Quantity	Total	Approx. Quantity	Total
1	Clearing and Grubbing	LS	LS	1	$ 100,000	1	$ 100,000	1	$ 50,000	1	$ 200,000
2	Contractor Construction Staking	LS	LS	1	$ 125,000	1	$ 125,000	1	$ 75,000	1	$ 250,000
3	Removal of Existing Structures	LS	LS	1	$ 100,000	1	$ 100,000	1	$ 50,000	1	$ 500,000
4	Compaction of Earthwork (All Types)	CY	$ 3.00	41,986	$ 125,958	55,585	$ 166,755	4,988	$ 14,964	124,157	$ 372,470
5	Unclassified Excavation (All Types)	CY	$ 30.00	17,604	$ 528,120	35,025	$ 1,050,750	7,402	$ 222,060	73,366	$ 2,200,980
6	Contractor Furnished Borrow	CY	$ 20.00	22,106	$ 442,125	17,756	$ 355,119	0	$ -	46,656	$ 933,123
7	Waste	CY	$ 2.00	0	$ -	0	$ -	2,939	$ 5,877	0	$ -
8	Concrete Pavement (9" Uniform) (NRDJ)	SY	$ 85.00	28,718	$ 2,441,037	33,032	$ 2,807,679	4,718	$ 401,013	58,464	$ 4,969,455
9	Concrete Pavement (12" Uniform) (NRDJ)	SY	$ 100.00	0	$ -	0	$ -	0	$ -	35,223	$ 3,522,273
10	Asphaltic Concrete, Surface Course (2")	SY	$ 15.00	1,657	$ 24,862	640	$ 9,602	0	$ -	233	$ 3,495
11	Asphaltic Concrete, Intermediate Course (6")	SY	$ 45.00	1,657	$ 74,586	1,038	$ 46,715	0	$ -	1,778	$ 80,010
12	Aggregate Base Course (4")	SY	$ 10.00	0	$ -	0	$ -	0	$ -	38,145	$ 381,452
13	Aggregate Base Course (OP Modified) (6")	SY	$ 12.00	34,403	$ 412,838	39,942	$ 479,308	5,392	$ 64,705	68,152	$ 817,822
14	Treated Subgrade, (8")	SY	$ 12.00	36,235	$ 434,817	40,676	$ 488,111	5,392	$ 64,705	68,448	$ 821,374
15	Lime Treated Subgrade (6")	SY	$ 10.00	0	$ -	0	$ -	0	$ -	38,145	$ 381,452
16	Pavement Edge Wedge (Rock)	Tons	$ 55.00	0	$ -	0	$ -	0	$ -	2,375	$ 130,625
17	Driveway (6") (KCMMB-4K Concrete)	SY	$ 61.00	555	$ 33,833	139	$ 8,457	64	$ 3,880	166	$ 10,126
18	Driveway (8") (KCMMB-4K Concrete)	SY	$ 75.00	0	$ -	139	$ 10,411	0	$ -	306	$ 22,950
19	Driveway (8") (Asphaltic Concrete)	SY	$ 60.00	0	$ -	388	$ 23,292	0	$ -	242	$ 14,520
20	Aggregate Driveway (OP Modified) (6")	SY	$ 10.00	78	$ 777	207	$ 2,069	43	$ 430	0	$ -
21	Concrete Brick Pavers	SF	$ 16.00	0	$ -	9,122	$ 145,954	2,658	$ 42,521	8,407	$ 134,504
22	Concrete Median Noses	EA	$ 1,600.00	0	$ -	2	$ 3,200	1	$ 1,600	4	$ 6,400
23	Curb and Gutter, (Type B)	LF	$ 25.00	9,258	$ 231,450	11,604	$ 290,100	1,148	$ 28,700	11,937	$ 298,425
24	Curb and Gutter, (Type C)	LF	$ 40.00	0	$ -	196	$ 7,840	0	$ -	124	$ 4,960
25	Curb and Gutter, (Type E)	LF	$ 25.00	9,303	$ 232,575	10,064	$ 251,600	845	$ 21,125	10,224	$ 255,600
26	Sidewalk Ramps	EA	$ 2,500.00	10	$ 25,000	14	$ 35,000	4	$ 10,000	4	$ 10,000
27	Concrete Sidewalk (4")	SF	$ 6.00	0	$ -	1,538	$ 9,226	0	$ -	0	$ -
28	Concrete Sidewalk (6")	SF	$ 7.00	93,671	$ 655,695	100,084	$ 700,589	6,783	$ 47,481	93,190	$ 652,330
29	Concrete Safety Barrier	LF	$ 260.00	0	$ -	0	$ -	0	$ -	4,838	$ 1,257,819
30	Guardrail (MGS)	LF	$ 100.00	0	$ -	0	$ -	0	$ -	316	$ 31,554
31	Handrail (Metal)	LF	$ 200.00	0	$ -	0	$ -	0	$ -	328	$ 65,613
32	Retaining Wall (CIP)	SF	$ 100.00	0	$ -	0	$ -	0	$ -	2,111	$ 211,066
33	Retaining Wall (MSE)	SF	$ 100.00	0	$ -	0	$ -	0	$ -	6,237	$ 623,725
34	6" Pipe Underdrain (All Types)	LF	$ 20.00	18,561	$ 371,213	21,239	$ 424,780	1,795	$ 35,891	21,300	$ 425,991
35	Inlets, (6' x 4') (Curb)	EA	$ 6,000.00	46	$ 276,000	50	$ 300,000	8	$ 48,000	52	$ 312,000
36	Inlets, (4' x 4') (Area)	EA	$ 6,000.00	0	$ -	2	$ 12,000	3	$ 18,000	3	$ 18,000

Item No.	Item	Unit	Unit Price	179th (Quivira to Switzer)		179th (Switzer to Antioch)		179th & Antioch Intersection		179th (Antioch to Metcalf)	
				Approx. Quantity	Total	Approx. Quantity	Total	Approx. Quantity	Total	Approx. Quantity	Total
37	Inlets, (6' x 6') (Area)	EA	$ 7,500.00	0	$ -	1	$ 7,500	0	$ -	0	$ -
38	Storm Sewer (18" RCP) (RCP Class III)	LF	$ 90.00	0	$ -	0	$ -	0	$ -	60	$ 5,400
39	Storm Sewer (24" RCP) (RCP Class III)	LF	$ 100.00	6,007	$ 600,707	7,072	$ 707,200	641	$ 64,100	6,698	$ 669,800
40	Storm Sewer (30'' RCP) (RCP Class III)	LF	$ 150.00	0	$ -	164	$ 24,600	0	$ -	0	$ -
41	Storm Sewer (36'' RCP) (RCP Class III)	LF	$ 200.00	161	$ 32,280	195	$ 39,000	0	$ -	0	$ -
42	Storm Sewer (42'' RCP) (RCP Class III)	LF	$ 250.00	0	$ -	203	$ 50,750	0	$ -	0	$ -
43	Storm Sewer (48'' RCP) (RCP Class III)	LF	$ 300.00	0	$ -	241	$ 72,300	0	$ -	0	$ -
44	Storm Sewer (54" RCP) (RCP Class III)	LF	$ 350.00	170	$ 59,518	0	$ -	340	$ 119,000	171	$ 59,850
45	Storm Sewer (60" RCP) (RCP Class III)	LF	$ 400.00	0	$ -	0	$ -	675	$ 270,000	65	$ 26,000
46	Reinforced Concrete Box (7' x 5')	LF	$ 800.00	164	$ 131,104	0	$ -	0	$ -	0	$ -
47	Reinforced Concrete Box (2 - 8' x 5')	LF	$ 1,800.00	0	$ -	0	$ -	0	$ -	944	$ 1,699,920
48	Reinforced Concrete Box (2 - 9' x 5')	LF	$ 2,000.00	0	$ -	0	$ -	0	$ -	198	$ 395,000
49	Slope Protection (Riprap Stone)(200 lb)	CY	$ 80.00	106	$ 8,480	52	$ 4,160	0	$ -	2,426	$ 194,080
50	Bedding for Slope Protection	CY	$ 60.00	27	$ 1,620	13	$ 780	0	$ -	607	$ 36,420
51	End Section (18") (RC)	EA	$ 1,500.00	0	$ -	0	$ -	0	$ -	2	$ 3,000
52	End Section (24") (RC)	EA	$ 2,000.00	0	$ -	0	$ -	0	$ -	4	$ 8,000
53	End Section (30" RC)	EA	$ 2,500.00	0	$ -	2	$ 5,000	0	$ -	0	$ -
54	End Section (36" RC)	EA	$ 3,000.00	2	$ 6,000	2	$ 6,000	0	$ -	0	$ -
55	End Section (42" RC)	EA	$ 3,500.00	0	$ -	2	$ 7,000	0	$ -	0	$ -
56	End Section (48" RC)	EA	$ 4,000.00	0	$ -	1	$ 4,000	0	$ -	0	$ -
57	End Section (54") (RC)	EA	$ 4,500.00	2	$ 9,000	0	$ -	0	$ -	2	$ 9,000
58	WMCC Bridge (178.5') (SB US-69)	SF	$ 140.00	0	$ -	0	$ -	0	$ -	7,943	$ 1,112,020
59	WMCC Bridge (178.5') (NB US-69)	SF	$ 140.00	0	$ -	0	$ -	0	$ -	7,943	$ 1,112,020
60	RCHS Bridge (252') (EB 179th St)	SF	$ 115.00	0	$ -	0	$ -	0	$ -	11,844	$ 1,362,060
61	RCHS Bridge (252') (WB 179th St)	SF	$ 115.00	0	$ -	0	$ -	0	$ -	11,844	$ 1,362,060
62	Sodding	SY	$ 6.00	49,304	$ 295,825	25,438	$ 152,626	3,347	$ 20,081	38,645	$ 231,873
63	Seeding	AC	$ 3,000.00	0	$ -	8	$ 24,600	1	$ 3,900	31	$ 94,200
64	Permanent Signing and Pavement Marking	LS	LS	1	$ 60,000	1	$ 60,000	1	$ 30,000	1	$ 260,000
65	Traffic Signal Installation	LS	LS	0	$ -	0	$ -	0	$ -	1	$ 600,000
66	Traffic Control	LS	LS	1	$ 150,000	1	$ 150,000	1	$ 75,000	1	$ 200,000
67	Street Lighting Installation	LS	LS	1	$ 300,000	1	$ 300,000	1	$ 100,000	1	$ 300,000
68	Temporary Water Pollution Control	LS	LS	1	$ 75,000	1	$ 75,000	1	$ 75,000	1	$ 75,000
69	Stormwater Treatment Facilities	EA	$ 30,000.00	4	$ 120,000	4	$ 120,000	2	$ 60,000	6	$ 180,000
	Subtotal				$ 8,485,419		$ 9,764,072		$ 2,023,033		$ 29,915,817
	Contingency (20%)				$ 1,697,084		$ 1,952,814		$ 404,607		$ 5,983,163
	Total Construction Cost				$ 10,182,503		$ 11,716,886		$ 2,427,640		$ 35,898,980

APPENDIX A – TRAFFIC ANALYSIS



LEGEND

STOP = Stop Controlled

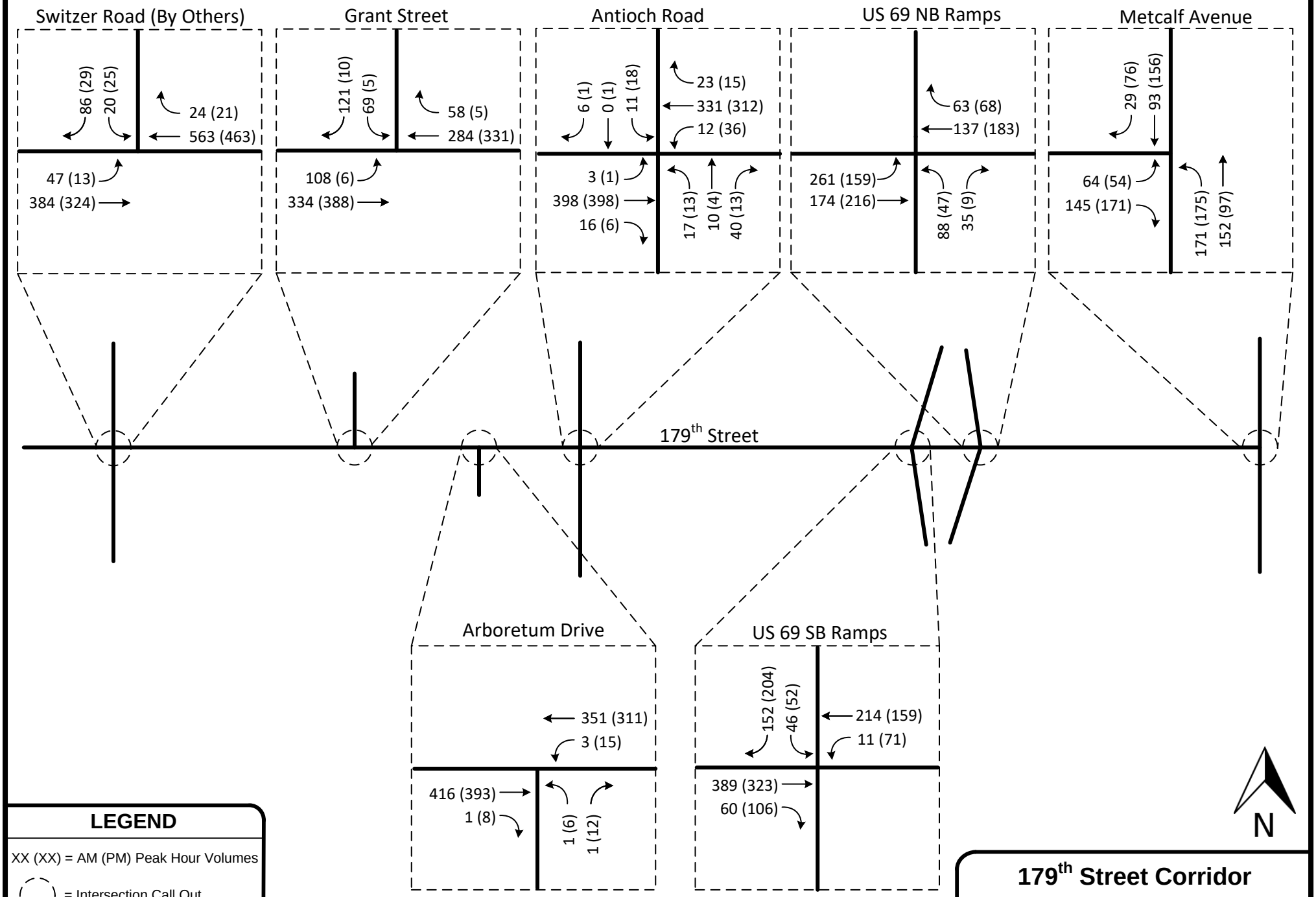
= Lane Configuration

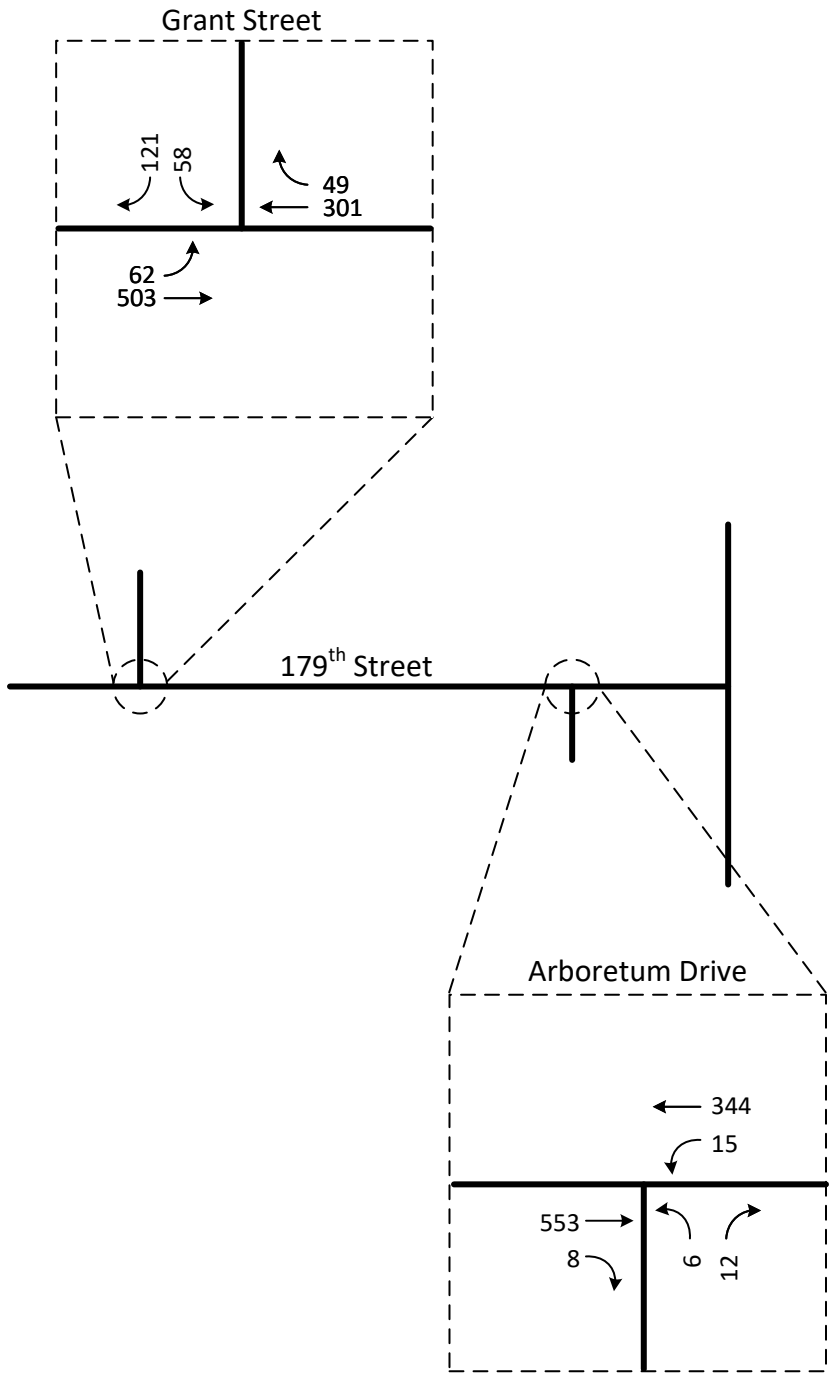
179th Street Corridor

Existing Intersection Control
& Lane Configuration

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 1**


Switzer Road (By Others)
Grant Street
Antioch Road
US 69 NB Ramps
Metcalf Avenue
179th Street
Arboretum Drive
US 69 SB Ramps
86 (29)
20 (25)
24 (21)
563 (463)
47 (13)
384 (324)
121 (10)
69 (5)
58 (5)
284 (331)
108 (6)
334 (388)
6 (1)
0 (1)
11 (18)
23 (15)
331 (312)
12 (36)
3 (1)
398 (398)
16 (6)
17 (13)
10 (4)
40 (13)
63 (68)
137 (183)
261 (159)
174 (216)
88 (47)
35 (9)
29 (76)
93 (156)
64 (54)
145 (171)
171 (175)
152 (97)
351 (311)
3 (15)
416 (393)
1 (8)
1 (6)
1 (12)
152 (204)
46 (52)
214 (159)
11 (71)
389 (323)
60 (106)
N
LEGEND
XX (XX) = AM (PM) Peak Hour Volumes
= Intersection Call Out
= Lane Configuration
179th Street Corridor
Existing AM & PM Volumes
Overland Park, KS
Prepared By: HNTB
DATE: July 2022
Sheet 2



LEGEND

XX = Volumes

= Intersection Call Out

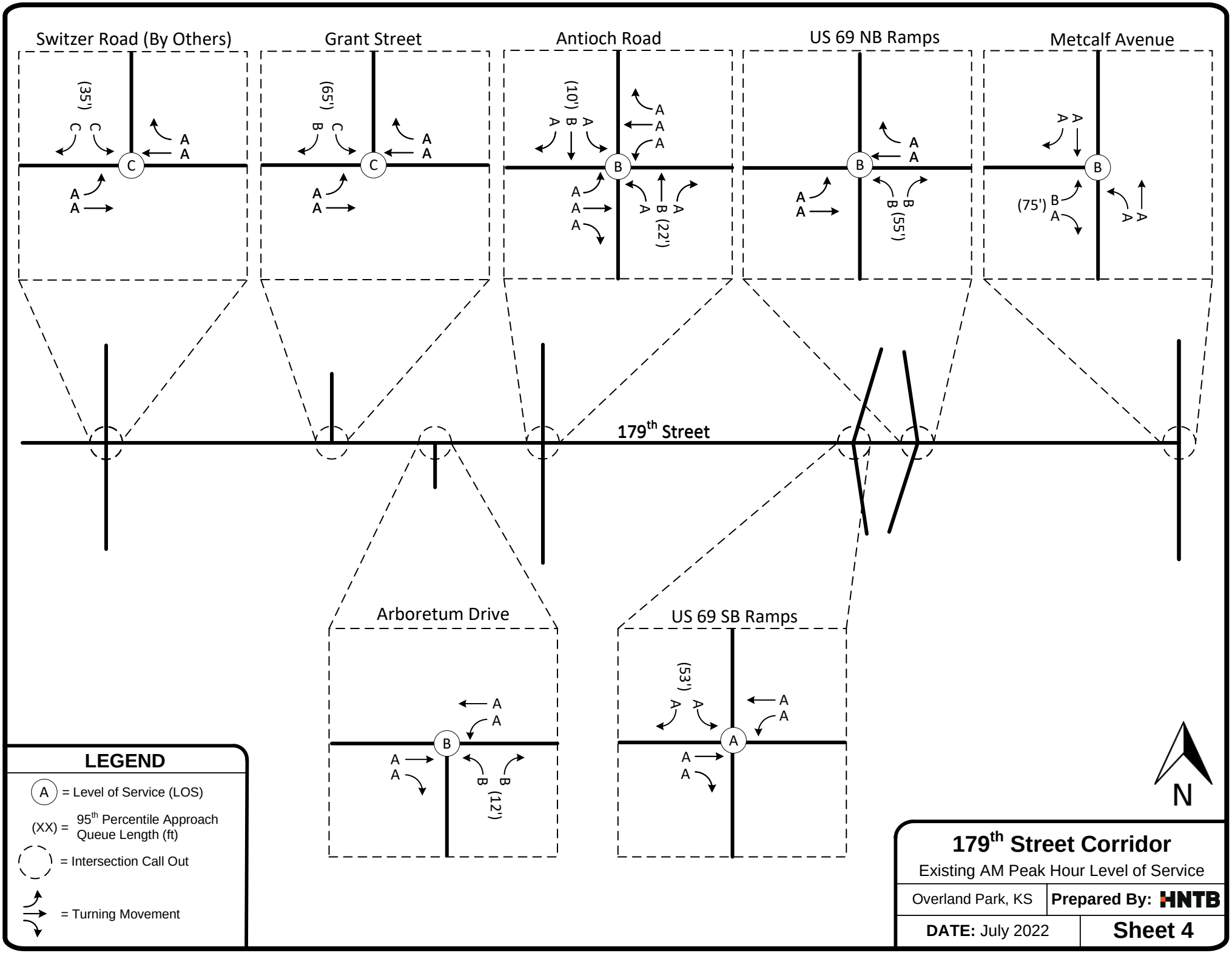
= Lane Configuration

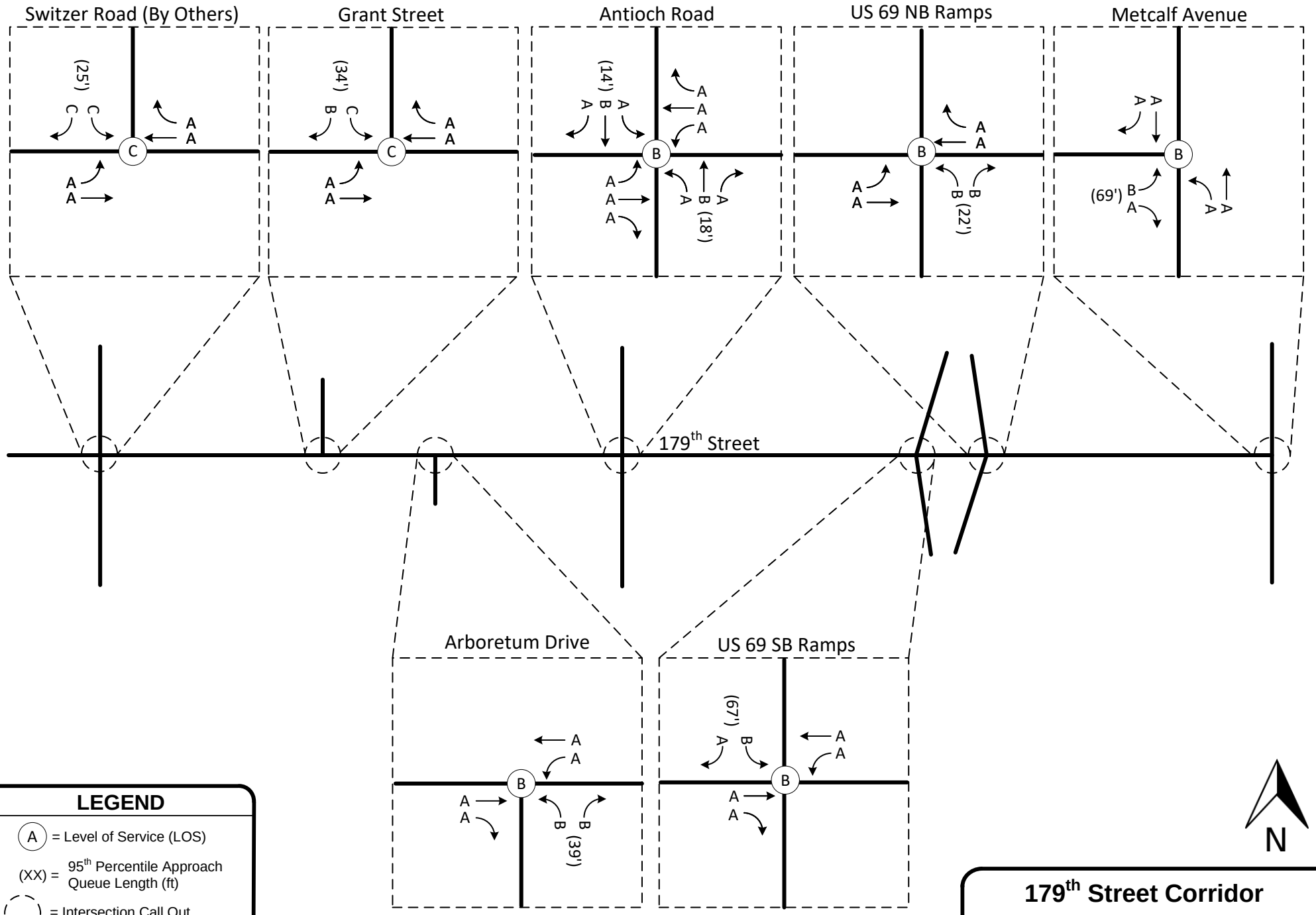
179th Street Corridor

Existing School Dismissal Volumes

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 3**


Switzer Road (By Others)
Grant Street
Antioch Road
US 69 NB Ramps
Metcalf Avenue
179th Street
Arboretum Drive
US 69 SB Ramps
(35')
(65')
(10')
(22')
(55')
(75')
(12')
(53')
LEGEND
A = Level of Service (LOS)
(XX) = 95th Percentile Approach Queue Length (ft)
= Intersection Call Out
= Turning Movement
N
179th Street Corridor
Existing AM Peak Hour Level of Service
Overland Park, KS
Prepared By: HNTB
DATE: July 2022
Sheet 4



LEGEND

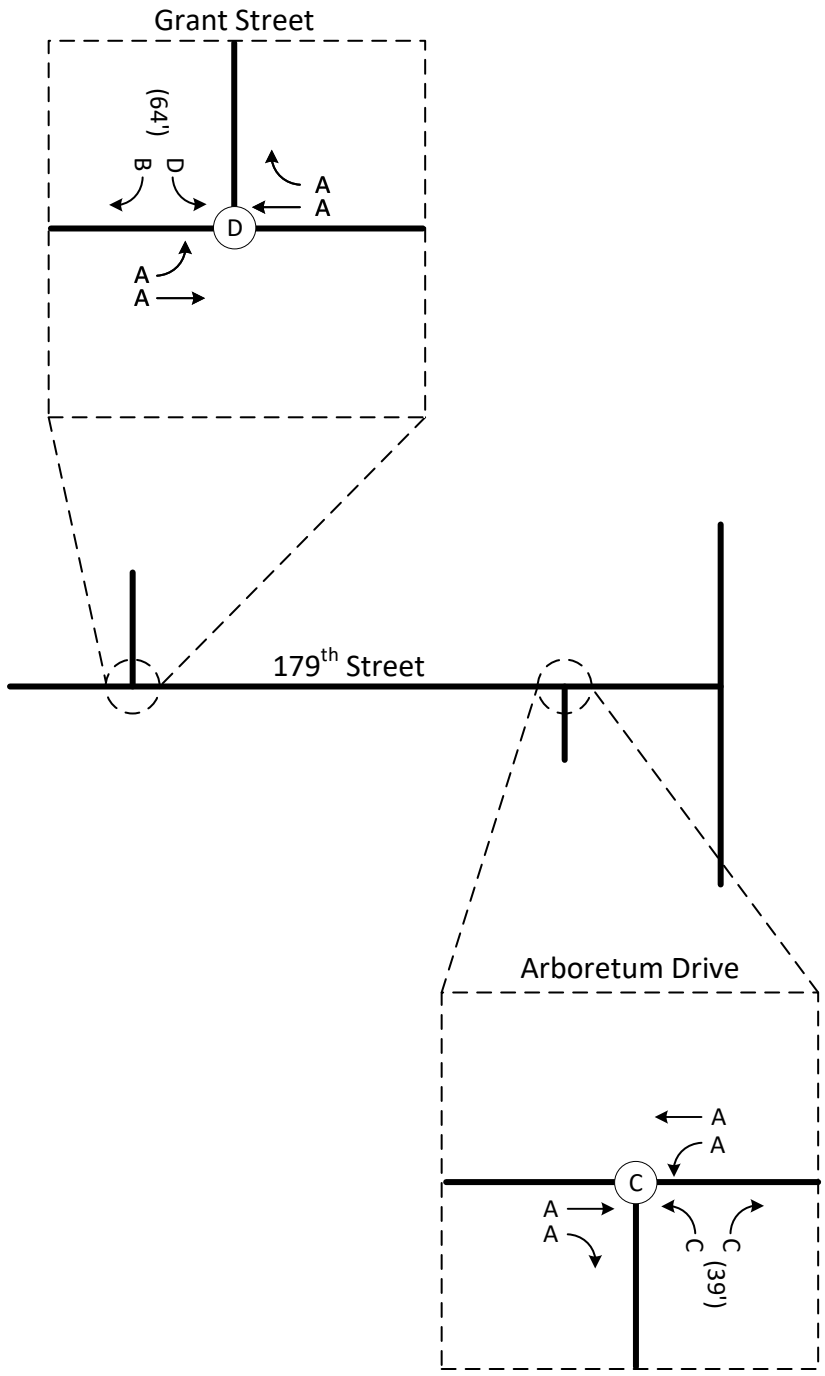
- A = Level of Service (LOS)
- (XX) = 95th Percentile Approach Queue Length (ft)
- = Intersection Call Out
- = Turning Movement

179th Street Corridor

Existing PM Peak Hour Level of Service

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 5**



LEGEND

A = Level of Service (LOS)

(XX) = 95th Percentile Approach Queue Length (ft)

= Intersection Call Out

= Turning Movement

Note: Only the 179th Street intersections with Grant Street and Arboretum Drive were analyzed during school dismissal peak

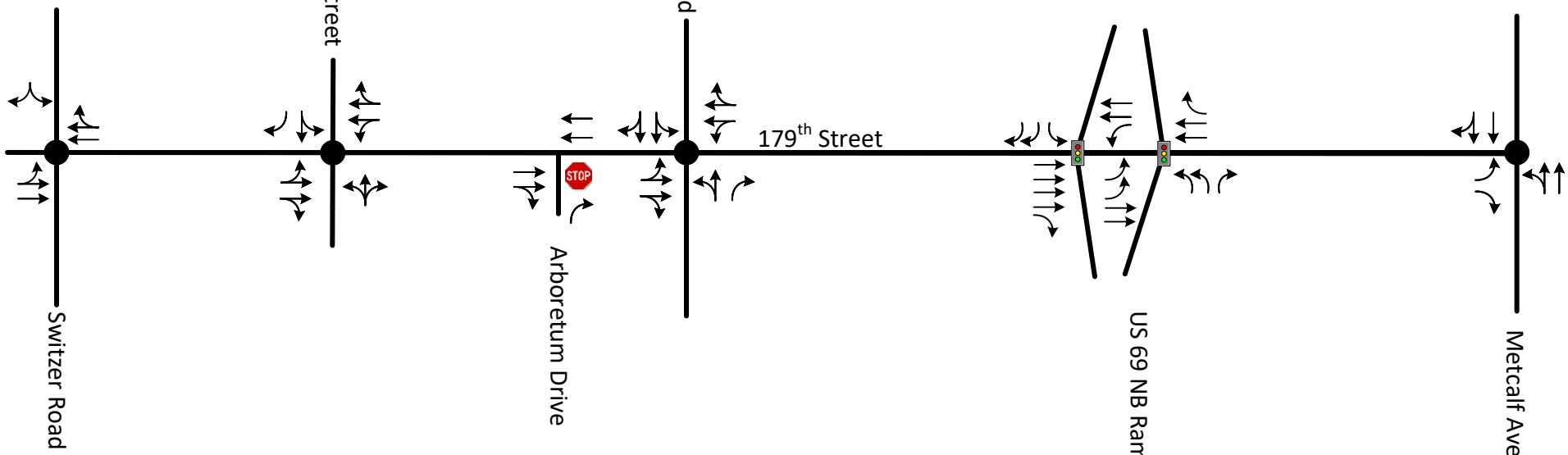
N

179th Street Corridor

Existing School Peak Hour Level of Service

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 6**



LEGEND

- = Traffic Signal
- = Roundabout
- = Stop Controlled
- = Lane Configuration

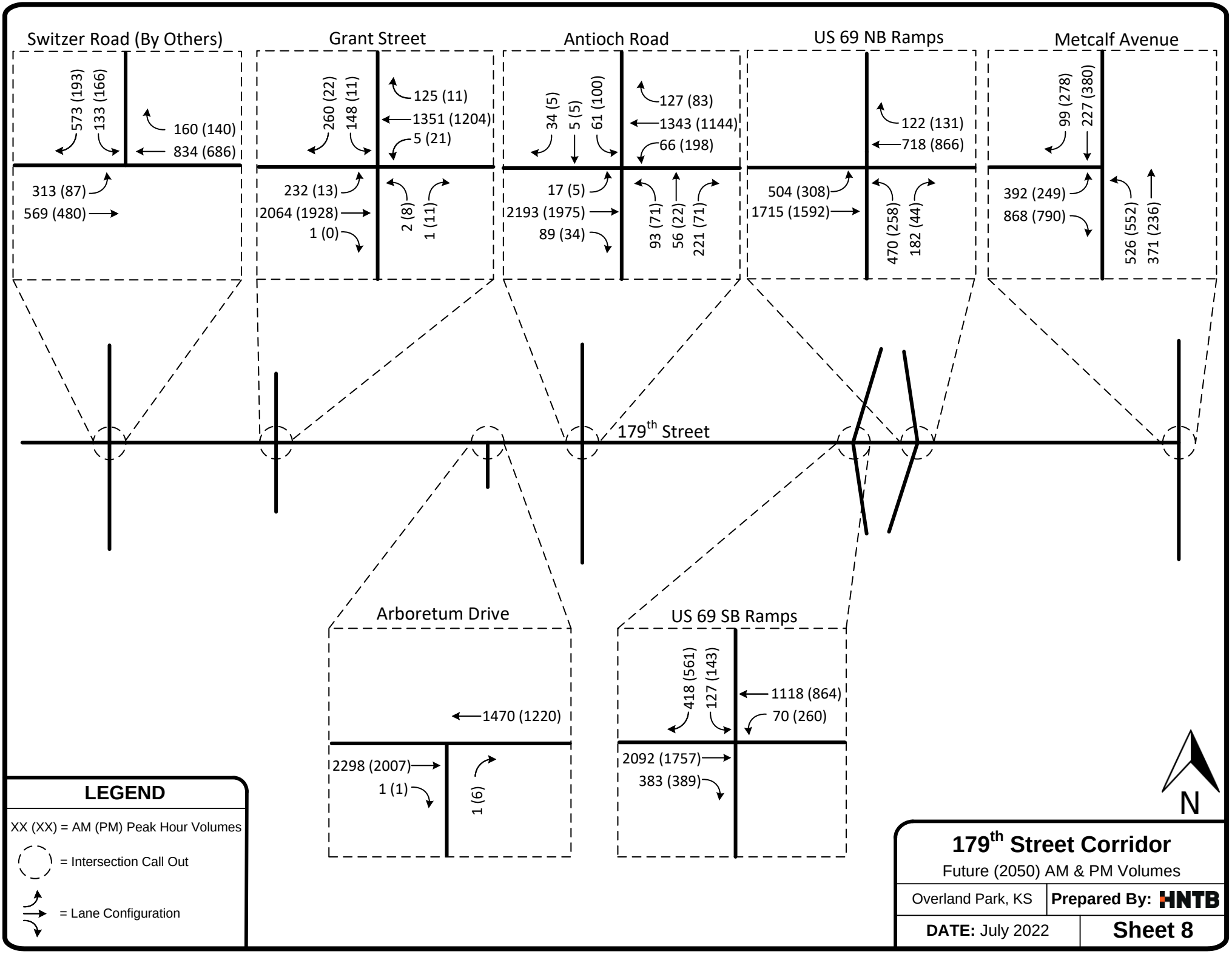
N

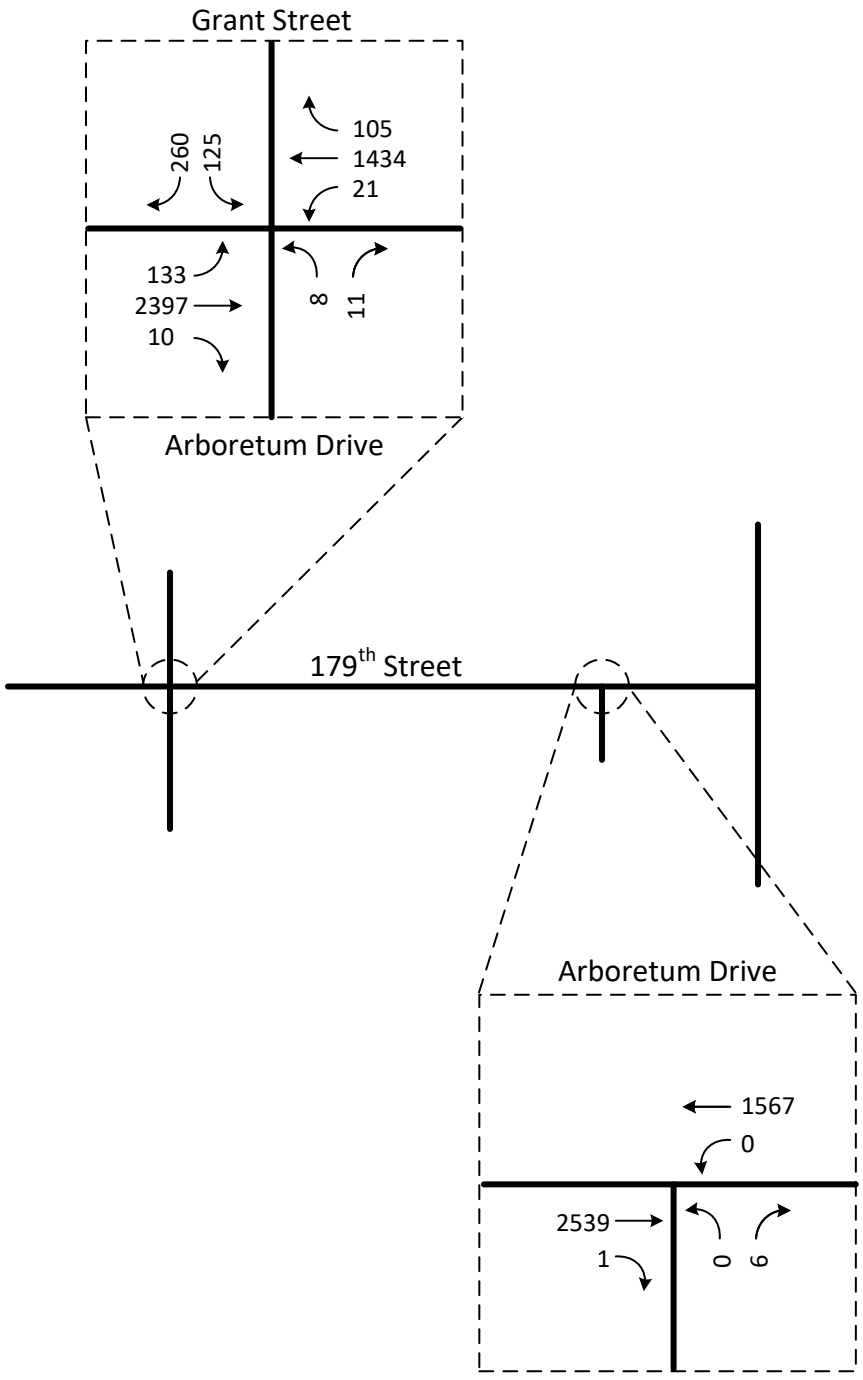
179th Street Corridor

Future (2050) Intersection Control & Lane Configuration

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 7**


Switzer Road (By Others)
573 (193)
133 (166)
160 (140)
834 (686)
313 (87)
569 (480)
Grant Street
260 (22)
148 (11)
125 (11)
1351 (1204)
5 (21)
232 (13)
2064 (1928)
1 (0)
2 (8)
1 (11)
Antioch Road
34 (5)
5 (5)
61 (100)
127 (83)
1343 (1144)
66 (198)
17 (5)
2193 (1975)
89 (34)
93 (71)
56 (22)
221 (71)
US 69 NB Ramps
122 (131)
718 (866)
504 (308)
1715 (1592)
470 (258)
182 (44)
Metcalf Avenue
99 (278)
227 (380)
392 (249)
868 (790)
526 (552)
371 (236)
179th Street
Arboretum Drive
1470 (1220)
2298 (2007)
1 (1)
1 (6)
US 69 SB Ramps
418 (561)
127 (143)
1118 (864)
70 (260)
2092 (1757)
383 (389)
N
LEGEND
XX (XX) = AM (PM) Peak Hour Volumes
= Intersection Call Out
= Lane Configuration
179th Street Corridor
Future (2050) AM & PM Volumes
Overland Park, KS
Prepared By: HNTB
DATE: July 2022
Sheet 8



LEGEND

XX = Volumes

= Intersection Call Out

= Lane Configuration

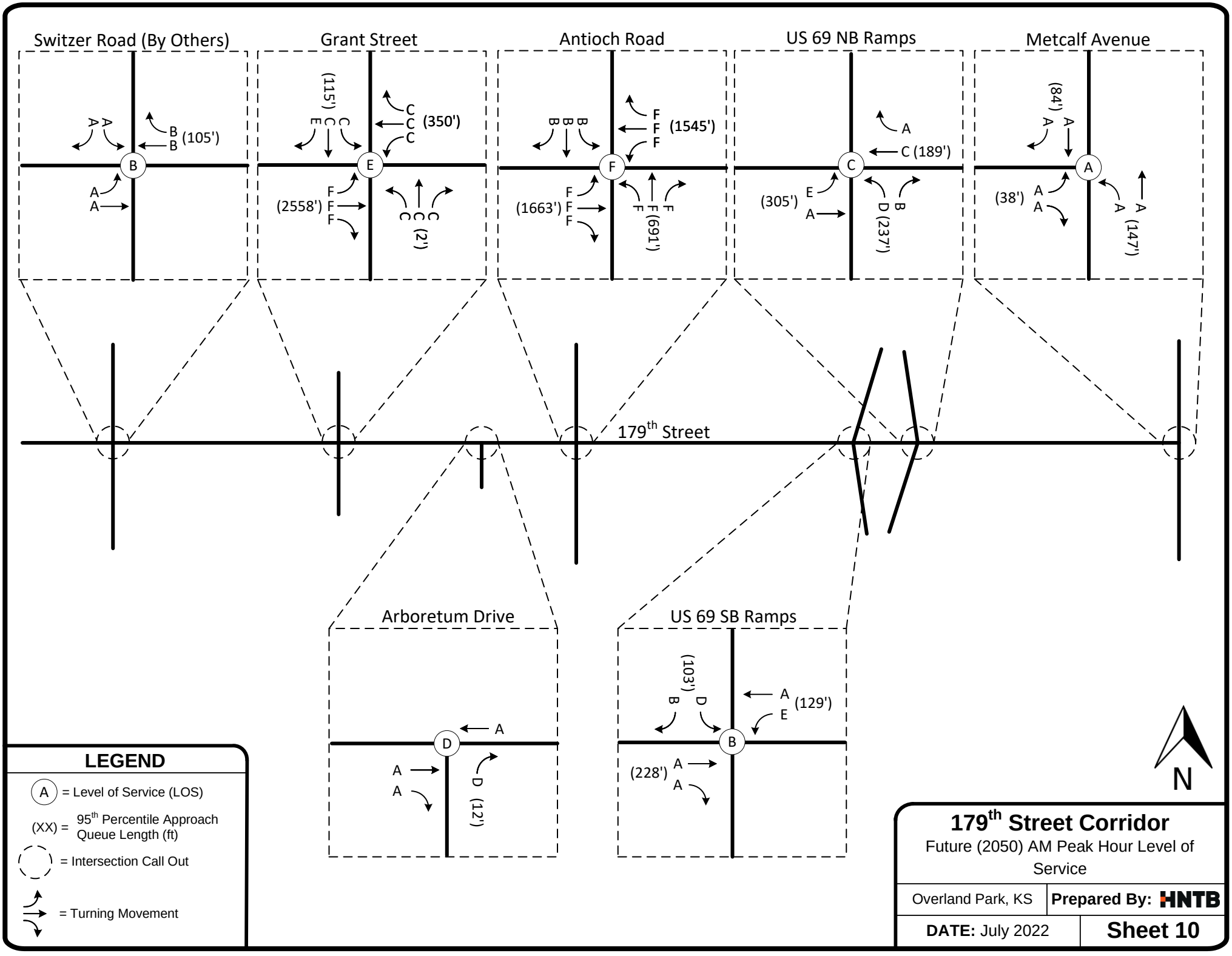
N

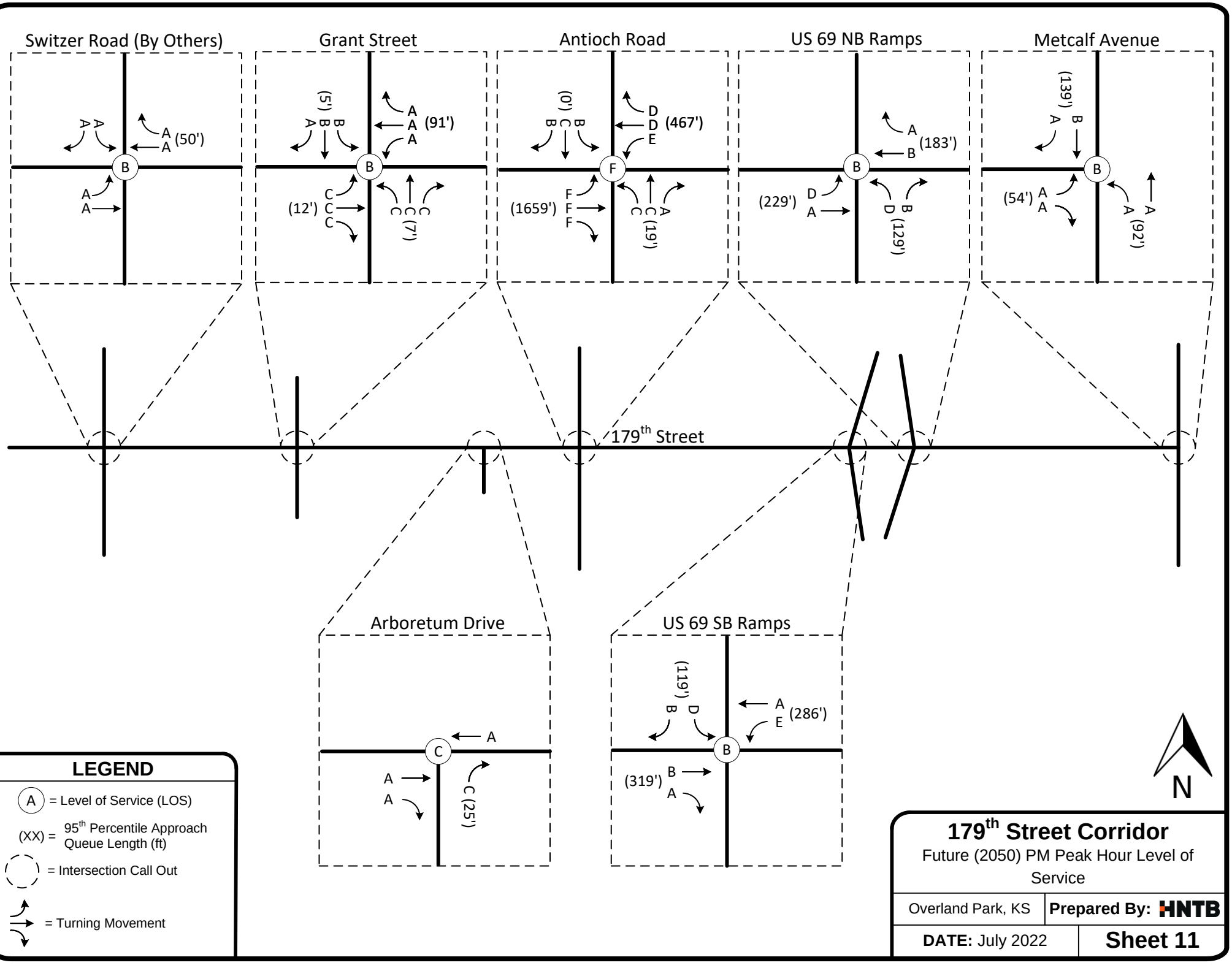
179th Street Corridor

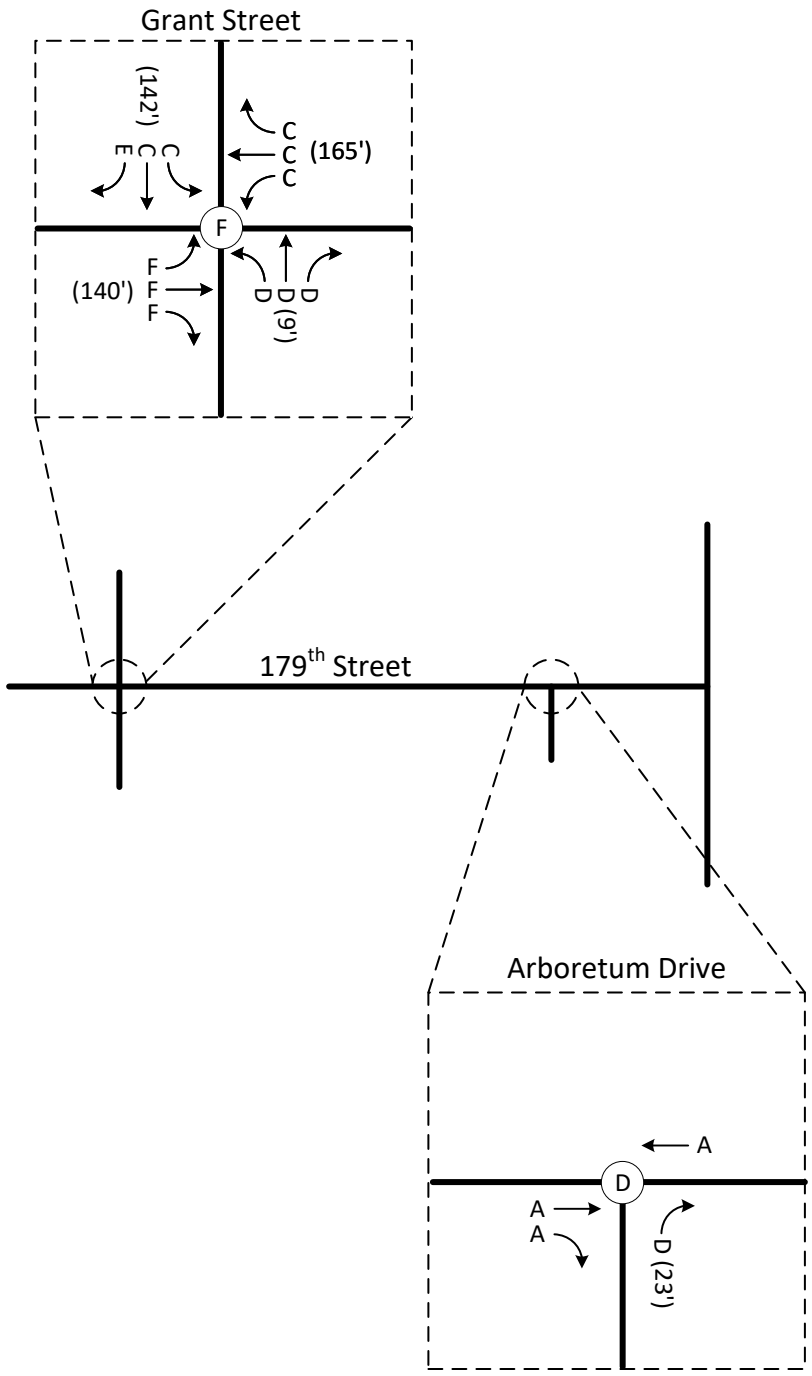
Future (2050) School Dismissal Volumes

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 9**


Switzer Road (By Others)
Grant Street
Antioch Road
US 69 NB Ramps
Metcalf Avenue
179th Street
Arboretum Drive
US 69 SB Ramps
(105')
(350')
(1545')
(189')
(84')
(147')
(115')
(2558')
(2')
(1663')
(691')
(305')
(237')
(38')
(103')
(129')
(228')
(12')
LEGEND
A = Level of Service (LOS)
(XX) = 95th Percentile Approach Queue Length (ft)
= Intersection Call Out
= Turning Movement
N
179th Street Corridor
Future (2050) AM Peak Hour Level of Service
Overland Park, KS
Prepared By: HNTB
DATE: July 2022
Sheet 10


Switzer Road (By Others)
Grant Street
Antioch Road
US 69 NB Ramps
Metcalf Avenue
179th Street
Arboretum Drive
US 69 SB Ramps
(50')
(91')
(467')
(183')
(139')
(92')
(129')
(229')
(54')
(12')
(7')
(1659')
(19')
(5')
(0')
(25')
(119')
(286')
(319')
LEGEND
A = Level of Service (LOS)
(XX) = 95th Percentile Approach Queue Length (ft)
= Intersection Call Out
= Turning Movement
N
179th Street Corridor
Future (2050) PM Peak Hour Level of Service
Overland Park, KS
Prepared By: HNTB
DATE: July 2022
Sheet 11



LEGEND

- (A) = Level of Service (LOS)
- (XX) = 95th Percentile Approach Queue Length (ft)
- = Intersection Call Out
- = Turning Movement

Note: Only the 179th Street intersections with Grant Street and Arboretum Drive were analyzed during school dismissal peak

N

179th Street Corridor

Future (2050) School Peak Hour Level of Service

Overland Park, KS | **Prepared By:** HNTB

DATE: July 2022 | **Sheet 12**

APPENDIX B – BIA APPROVAL LETTER

Dwight D. Eisenhower State Office Building
700 S.W. Harrison Street
Topeka, KS 66603-3745
Julie L. Lorenz, Secretary
Michael J. Moriarty, Chief

Kansas
Department of Transportation
Bureau of Transportation and Planning

Phone: 785-296-3841
Fax: 785-296-8168
kdot#publicinfo@ks.gov
http://www.ksdot.org
Laura Kelly, Governor

February 16, 2022

Mr. Stephen F. Rockers, P.E.
U.S. 69 Express Project Director
Kansas Department of Transportation
2029 Becker Drive
Lawrence, KS 66047

Dear Mr. Rockers:

In accordance with Federal Highway Administration (FHWA) and Kansas Department of Transportation (KDOT) regulations, we are issuing a determination of safety, operational, and engineering acceptability for the modification of access to the U.S. 69 corridor from the 103rd Street Interchange to the 179th Street interchange in Overland Park, Kansas for project number 69-46 KA5700-02. The Break-In-Access procedures and guidelines, set forth in the latest FHWA policy have been followed.

An electronic copy of the U.S. 69 Break-in-Access Request from December 1, 2021 is being transmitted via the Project SharePoint site. The folder also includes the VISSIM models prepared for KDOT.

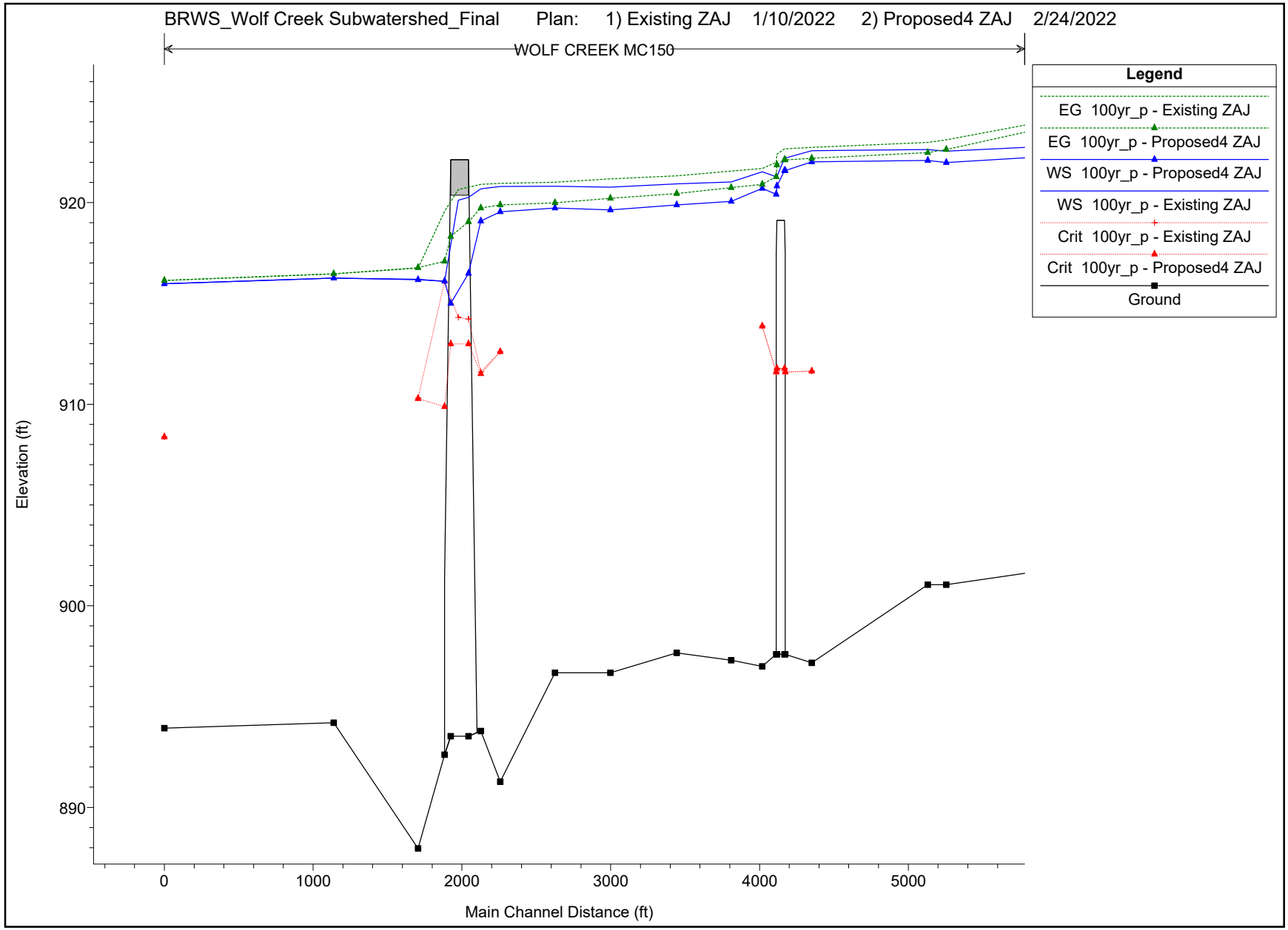
A portion of the improvements illustrated in this Break-in-Access document (the Base Improvements included in the 2040 Build modeling) are planned to be constructed via a Design-Build project. The Design-Build project is planned as a Best-Value procurement and as such portions of the Ultimate Build 2050 improvements may be incorporated into the Design-Build project. This could include the interchange improvements are not constructed via the Design-Build project, they are included in the fiscally constrained Mid-America Regional Council (MARC) Long-Range Transportation Plan to be constructed in the 2030 decade.

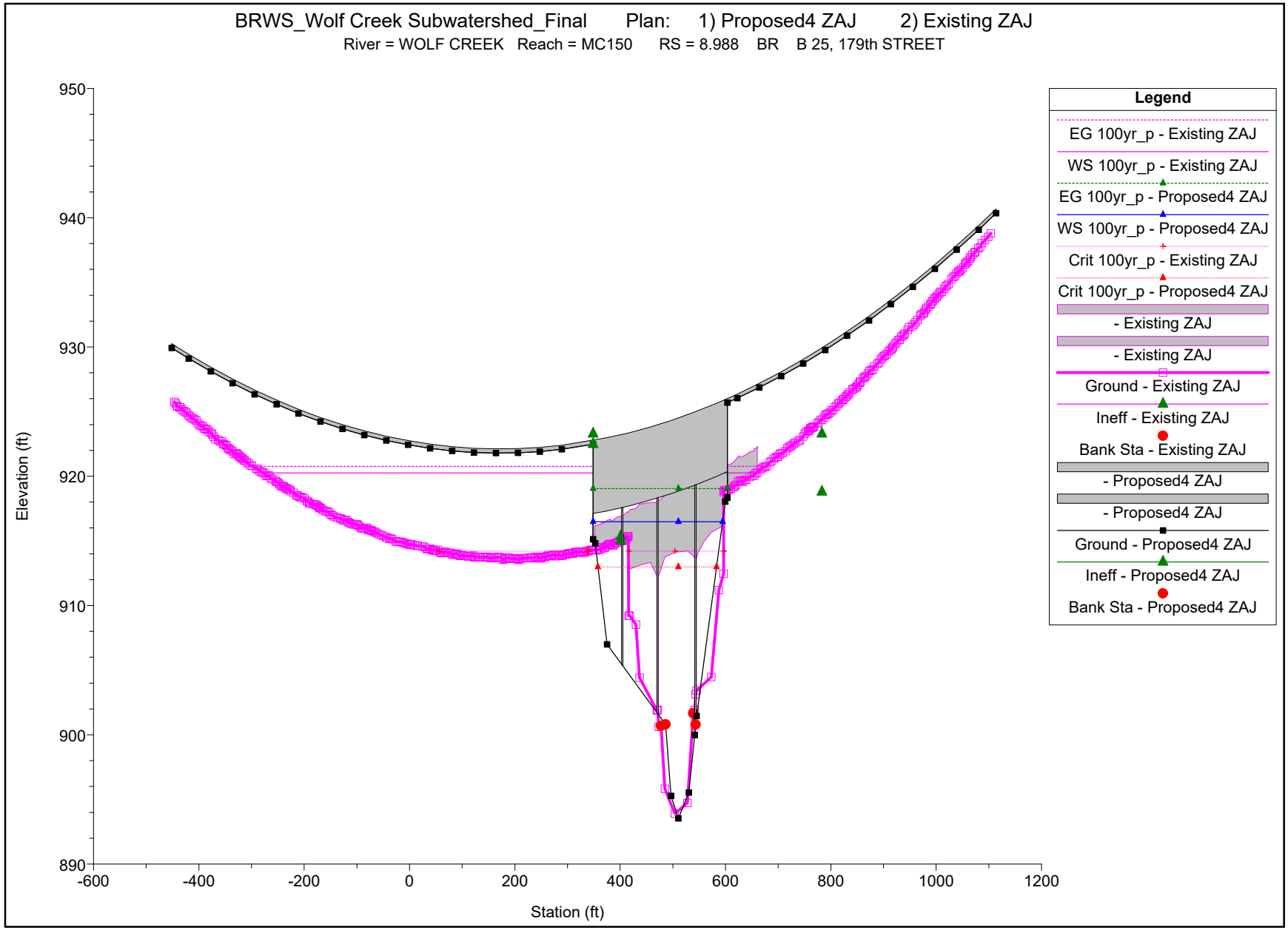
Based on the FHWA approval of the Environmental Assessment and issuance of a Finding of No Significant Impact (FONSI) on February 15, 2022 and based upon KDOT's involvement and review of this request for modification of access of the U.S. 69 corridor we give full approval of the U.S. 69 Break in Access.

Sincerely,

Michael J. Moriarty
Chief of Transportation Planning

APPENDIX C – WOLF CREEK ANALYSIS


BRWS_Wolf Creek Subwatershed_Final Plan: 1) Existing ZAJ 1/10/2022 2) Proposed4 ZAJ 2/24/2022
WOLF CREEK MC150
Legend
EG 100yr_p - Existing ZAJ
EG 100yr_p - Proposed4 ZAJ
WS 100yr_p - Proposed4 ZAJ
WS 100yr_p - Existing ZAJ
Crit 100yr_p - Existing ZAJ
Crit 100yr_p - Proposed4 ZAJ
Ground
Elevation (ft)
920
910
900
890
0
1000
2000
3000
4000
5000
Main Channel Distance (ft)


BRWS_Wolf Creek Subwatershed_Final Plan: 1) Proposed4 ZAJ 2) Existing ZAJ
River = WOLF CREEK Reach = MC150 RS = 8.988 BR B 25, 179th STREET
Elevation (ft)
950
940
930
920
910
900
890
-600
-400
-200
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG 100yr_p - Existing ZAJ
WS 100yr_p - Existing ZAJ
EG 100yr_p - Proposed4 ZAJ
WS 100yr_p - Proposed4 ZAJ
Crit 100yr_p - Existing ZAJ
Crit 100yr_p - Proposed4 ZAJ
- Existing ZAJ
- Existing ZAJ
Ground - Existing ZAJ
Ineff - Existing ZAJ
Bank Sta - Existing ZAJ
- Proposed4 ZAJ
- Proposed4 ZAJ
Ground - Proposed4 ZAJ
Ineff - Proposed4 ZAJ
Bank Sta - Proposed4 ZAJ

APPENDIX D – PRELIMINARY PLANS