

**SR-202L (Santan Freeway)
Lindsay Road Traffic Interchange**

Feasibility Report

Prepared For:

Maricopa Association of Governments

Prepared By:

AECOM

2325 E. Camelback Road, Suite 200
Phoenix, Arizona 85016

OCTOBER 2014

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List of Abbreviations

ADOT	Arizona Department of Transportation
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
Dr	Drive
FCDMC	Flood Control District of Maricopa County
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMS	Freeway Management System
HOV	High occupancy vehicle
kV	Kilovolt
MAG	Maricopa Association of Governments
mph	Miles per hour
PCCP	Portland Cement Concrete Pavement
O&M	Operations and maintenance
Rd	Road
RTP	Regional Transportation Plan
RWCD	Roosevelt Water Conservation District
R/W	Right-of-way
SRP	Salt River Project
SR	State Route
TCE	Temporary construction easement
TI	Traffic interchange
vpd	Vehicles per day

1.0 INTRODUCTION

1.1 PROJECT LOCATION

This Feasibility Report provides a high-level overview of the existing and future conditions near the intersection of the State Route 202 (SR-202L) (Santan Freeway) with Lindsay Road (milepost 43.6), and provides planning information for a potential new traffic interchange (TI) at this location. The project study area is shown in Figure 1.

This project is located in the Arizona Department of Transportation's (ADOT's) Phoenix Construction District within Maricopa County.

1.2 NEED FOR THE PROJECT

In recent years, Maricopa County has been one of the fastest growing regions in the United States. Population projections indicate the population of Maricopa County will double between 2000 and 2030. Since 1980, Gilbert's population has doubled every five years to a population of approximately 217,000 residents in 2012. This population surge earned Gilbert the title of the 4th fastest growing community in the nation from the U.S. Census Bureau in 2009. According to Maricopa Association of Governments socio-economic projections (June 2013), Gilbert is anticipated to have nearly 293,000 residents by 2030 making it the 5th largest city in the Phoenix metropolitan area.

Along the SR-202L corridor, the Town of Gilbert General Plan includes intense office, retail, light industrial and employment uses. Potential development within the project area could double the amount of office space that is currently within the Town of Gilbert.

The SR-202L corridor generally has interchanges every mile that provide access to the local street system. Traffic interchanges currently provide access to Gilbert Road and Val Vista Drive. However, an interchange does not currently exist at Lindsay Road.

Both Gilbert Road and Val Vista Drive currently carry between 30,000 and 45,000 vehicles per day (vpd). The 2035 traffic projections show dramatic increases in both the east-west and north-south traffic. The daily traffic volumes on Germann Road and Pecos Road are anticipated to nearly double, while the daily volumes on Gilbert Road and Val Vista Drive are anticipated to grow between 30% and 60%. An interchange at Lindsay Road would enhance the access to the area and could relieve traffic from Gilbert Road and Val Vista Drive.

The goal of this Feasibility Report is to investigate the issues and constraints associated with a potential new traffic interchange at Lindsay Road, develop a potential interchange concept, associated costs, and provide information related to the implementation of an interchange.

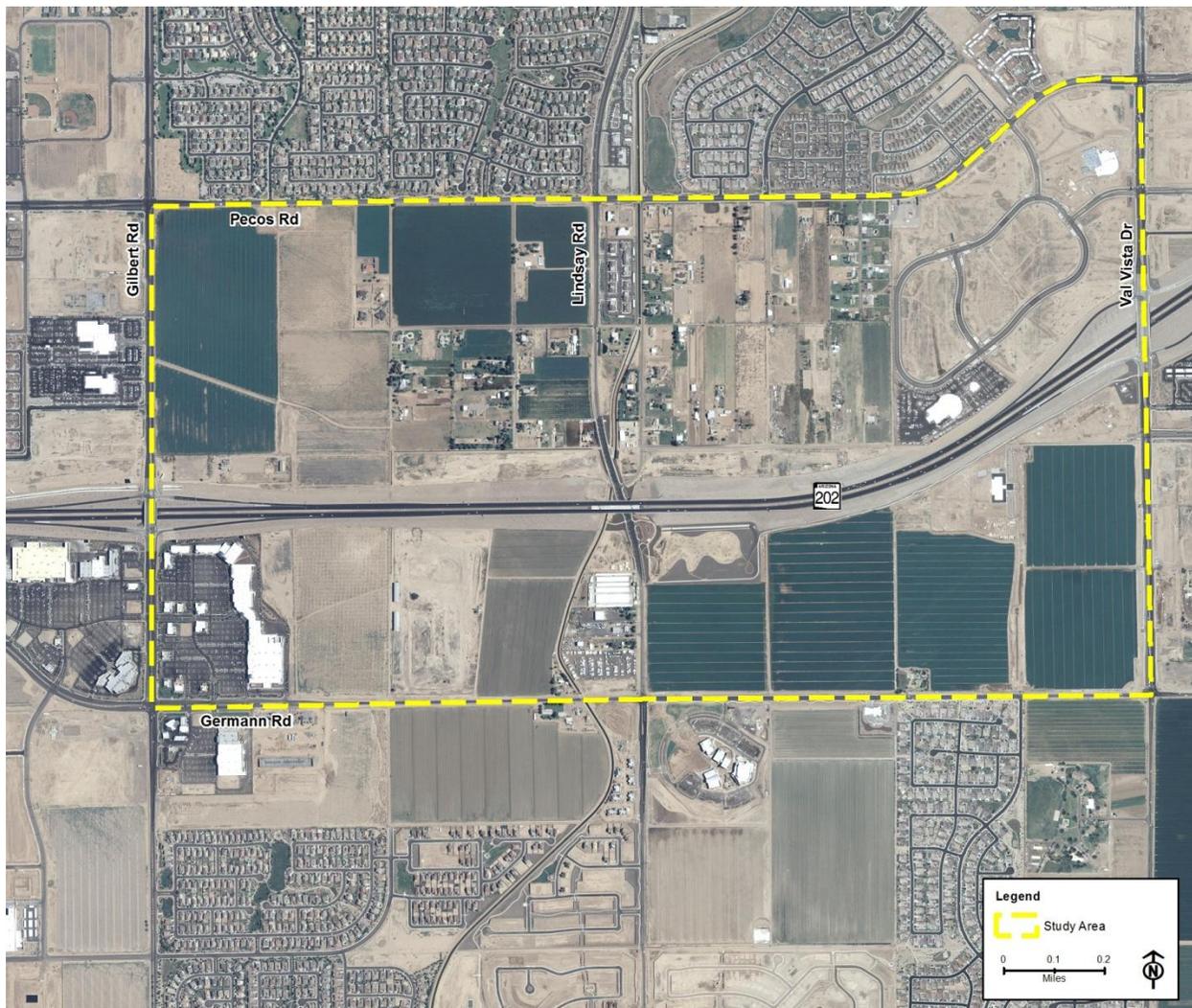


Figure 1 – Study Area

1.3 CHARACTERISTICS OF THE CORRIDOR

1.3.1 Roadway

The SR-202L is classified as a controlled-access Urban Principal Freeway/Expressway with a posted speed limit of 65 miles per hour (mph). Near Lindsay Road, the freeway section currently includes three general-purpose lanes in each direction of travel. Future freeway widening will provide an additional general-purpose lane in each direction of travel by widening to the outside of the existing freeway, and will provide a High-Occupancy Vehicle (HOV) Lane in each direction of travel in the median.

Service interchanges provide full freeway access at Gilbert Road and Val Vista Drive. A grade separation and freeway overpass is provided at Lindsay Road. The existing Gilbert Road

centerline is approximately 5,000' west of the Lindsay Road centerline and the existing Val Vista Drive centerline is approximately 6,000' east of the Lindsay Road centerline.

Auxiliary lanes are typically provided between successive interchange entrance and exit ramps along the SR-202L. However, since access to Lindsay Road is not provided, the Gilbert Road westbound exit and the Val Vista Drive eastbound exit are configured as parallel-type exit ramps, and the Gilbert Road eastbound entrance and the Val Vista Drive westbound entrance are configured as parallel-type entrance ramps.

The Santan Freeway is depressed under Gilbert Road and then elevates to pass over Lindsay Road. It then transitions to a depressed section at Val Vista Drive.

Lindsay Road is generally at-grade and passes under the SR-202L. South and north of the SR-202L, Lindsay Road generally provides one lane in each direction of travel. At the SR-202L crossing, Lindsay Road has been improved to provide curb, gutter, sidewalks, and pavement width to accommodate a total of five travel lanes. However, the existing striping provides two northbound lanes, a single southbound lane, and a flush median. South of the SR-202L, Lindsay Road is located along the section line. North of the SR-202L, Lindsay Road is located west of the section line. The transition to shift the roadway alignment occurs at the SR-202L crossing.

1.3.2 Land Use, Ownership, and Jurisdiction

Land jurisdiction refers to the city, town, county, state, or federal agency or agencies exercising governmental authority over an area, whereas land ownership is identified in terms of public or private control. The study area is generally within the Town of Gilbert with pockets of unincorporated Maricopa County (land jurisdiction) both north and south of the Santan Freeway, as shown in Figure 2.

Land ownership directly adjacent to the freeway generally includes private property. Maricopa County owns a parcel located south of the freeway and west of Lindsay Road, and a parcel located north of the freeway and east of Lindsay Road. According to ADOT Right-of-Way (R/W) Plans, the Roosevelt Water Conservation District (RWCD) owns the parcel of land occupied by the Extension Canal. The existing land ownership is shown in Figure 3.

North of the freeway, the existing land use is generally agricultural and single-family homes. South of the freeway, the existing land use is generally agricultural and light industrial.

South of the freeway and east of Lindsay Road, the ADOT R/W expands to accommodate a drainage basin. The underlying land is owned by ADOT and the primary purposes of this land are transportation and drainage. Through an agreement with ADOT, the Town of Gilbert has constructed Zanjero Park on this parcel. This parcel is owned by ADOT and the park is maintained by the Town of Gilbert.

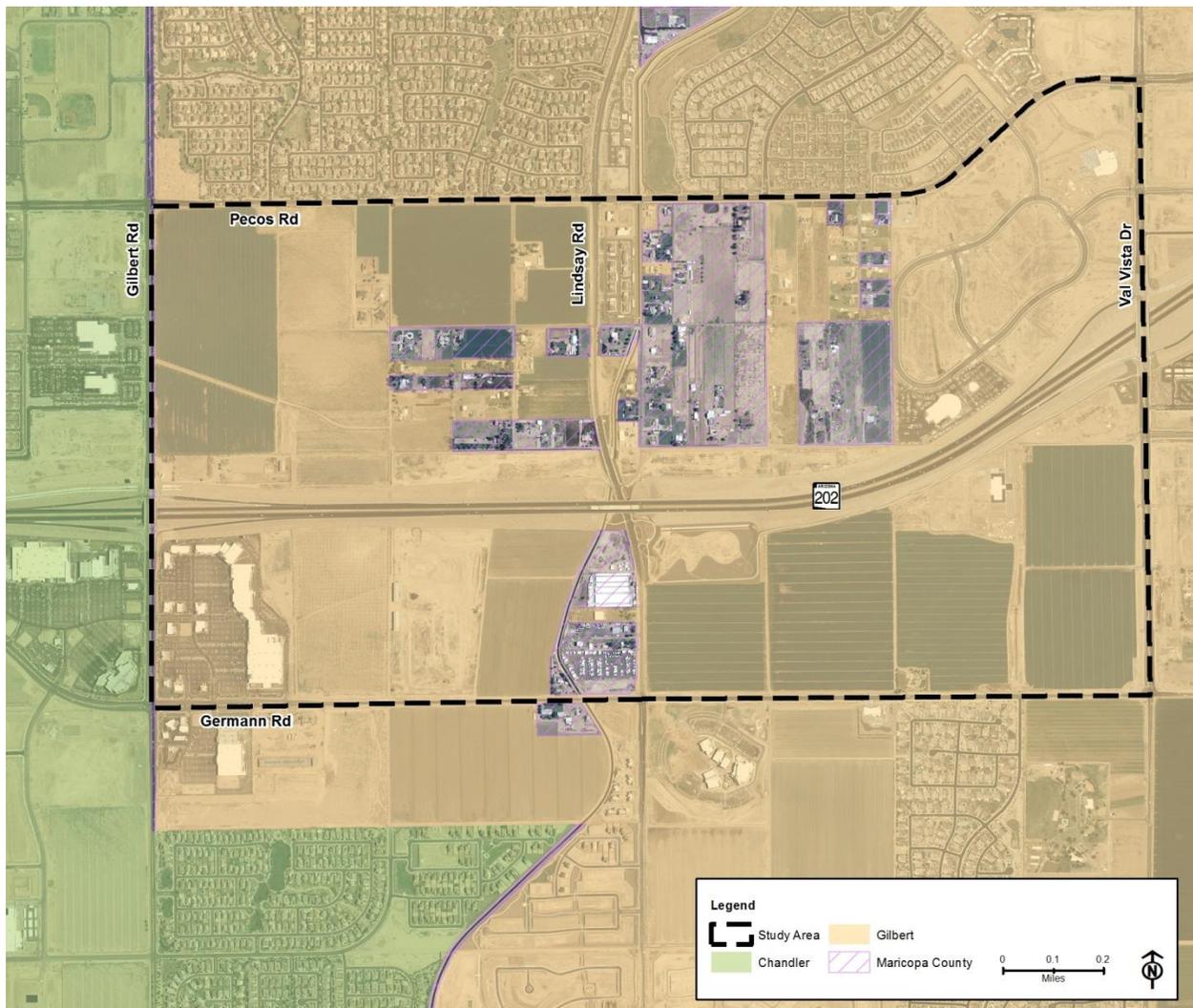
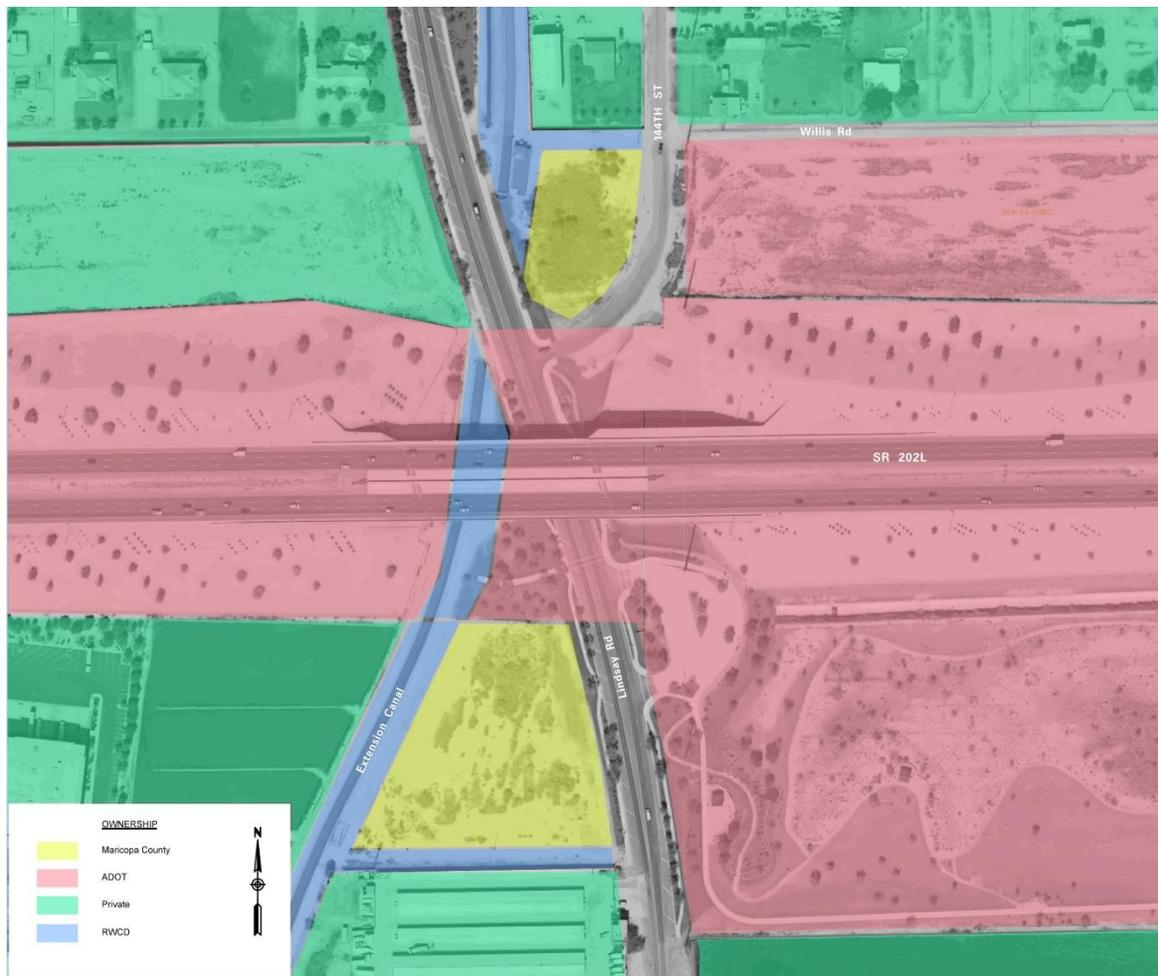


Figure 2 – Land Jurisdiction

Along the SR-202L corridor, the Town of Gilbert plans high density office, retail, light industrial and employment uses. The Gilbert 202 growth area is located on both sides of the SR-202L from Gilbert Road to Val Vista Drive and includes approximately 1,100 acres. The area is also part of the Economic Development Employment Corridor Number 4 which is approximately 2,040 acres with approximately 1,184 acres (58%) that is currently vacant. The planned 252 acre Rivulon development is north of the SR-202L and east of Gilbert Road which could include over 3 million square feet of commercial office space.



Notes:

1. Map reflects generalized approximate parcel boundaries.
2. Based on information from Maricopa County GIS Portal and ADOT R/W Plans
3. Areas that are not shaded are street R/W that is owned by the Town of Gilbert or Maricopa County.

Figure 3 – Land Ownership

1.3.3 Utilities

According to the ADOT as-built plans, the following utilities are located near or within Lindsay Road:

- SRP 69kV overhead power crossing the SR-202L along Lindsay Road section line
- Cox, SRP Power, and Centurylink joint-use trench crossing the SR-202L along Lindsay Road section line
- Town of Gilbert 24" sanitary sewer in Lindsay Road
- Town of Gilbert 18" sewer force main in Lindsay Road
- Gas line and water line in Lindsay Road (shown on structural drawings but not utility drawings)
- RWCD Extension Canal

- SRP Power underground crossing the SR-202L approximately 1,500' east of Lindsay Road
- SRP irrigation crossing the SR-202L near Mustang Drive (140th Street)

The Extension Canal is owned and operated by the RWCD. The canal generally runs north-south through the study area. At the SR-202L, the Extension Canal passes under the freeway in the western span of the freeway overpass while Lindsay Road occupies the eastern span. Immediately north of the SR-202L, the Extension Canal is conveyed under Lindsay Road in a concrete box culvert. Immediately north of the Lindsay Road crossing, a tail-water (waste) line connects to the Extension Canal. This tail-water originates from the east and contains large amounts of sediment. Once this flow enters the Extension Canal, the flow velocity drops and the sediment falls to the bottom of the canal. RWCD removes the sediment from the canal twice per year. This operation occurs within RWCD R/W under the Lindsay Road overpass. The RWCD maintenance crews remove the sediment from the west bank of the canal and stockpile the sediment on the east bank of the canal. Due to this maintenance operation, and existing well and pump sites located north and south of the SR-202L, operations and maintenance access along the east bank of the canal is not continuous. RWCD has indicated that they are not in support of this potential project as it would affect their operations and maintenance of the Extension Canal.

1.3.4 Right-of-Way

The ADOT R/W is generally 500' feet wide between Gilbert Road and Val Vista Drive. As described previously, the ADOT R/W expands east of Lindsay Road to include a drainage basin on the south side of the freeway. The existing land ownership is shown in Figure 3.

Along Lindsay Road, the existing Town of Gilbert R/W is 110' feet wide. It is anticipated that the ultimate R/W width along Lindsay Road will be 130'.

1.3.5 Structures

The Lindsay Road overpass was as-built in 2006. The ADOT Bridge Inspection Reports indicate that the Lindsay Road overpass has a minimum vertical clearance of 17.3' and has a sufficiency rating of 86.37. The existing structure consists of two spans – the western span is 170' long and the eastern span is 162' long. The RWCD Extension Canal occupies the western span while Lindsay Road occupies the eastern span. The clear opening on the eastern span will accommodate a 4-lane cross-section with dual left-turn lanes in each direction. A 6-lane cross-section with dual left-turn lanes would likely need to include reduced lane widths (possibly 11' wide through lanes) to fit within the existing span.

Retaining walls are located in each quadrant of the overpass which are offset from the existing mainline to accommodate a future additional general-purpose lane along the SR-202L.

The RWCD Extension Canal is conveyed under Lindsay Road in a concrete box culvert. This box culvert crosses under Lindsay Road at a very large skew angle. It appears that this box culvert may need to be extended to accommodate a 4-lane cross-section with dual left-turn lanes. Design options should be investigated during future scoping efforts using field survey data.

1.3.6 Drainage

A storm-water basin is located south of SR-202L and east of Lindsay Road. East of Lindsay Road and south of SR-202L, a 96" storm drain conveys flows from the east into the basin. West of Lindsay Road, a 66" storm drain is located along the north side of the SR-202L which collects and conveys flows to the west. The 66" storm drain is also an outfall for the basin. This storm drain originates in the basin, crosses under Lindsay Road south of the SR-202L, and then crosses under the Extension Canal and the SR-202L mainline west of Lindsay Road.

The area east of Lindsay Road and north of SR-202L drains into a 72" storm drain which crosses under the SR-202L and drains into the basin.

Per Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 2745 of 4425, Map Number 04013C2745L, portions of the study area are designated as Zone AH. Zone AH is designated to be within the federally regulated 100-year floodplain with ponding depths between 1 and 3 feet. The Flood Control District of Maricopa County (FCDMC) is the floodplain administrator. A portion of the FEMA FIRM panel is shown in Figure 4.

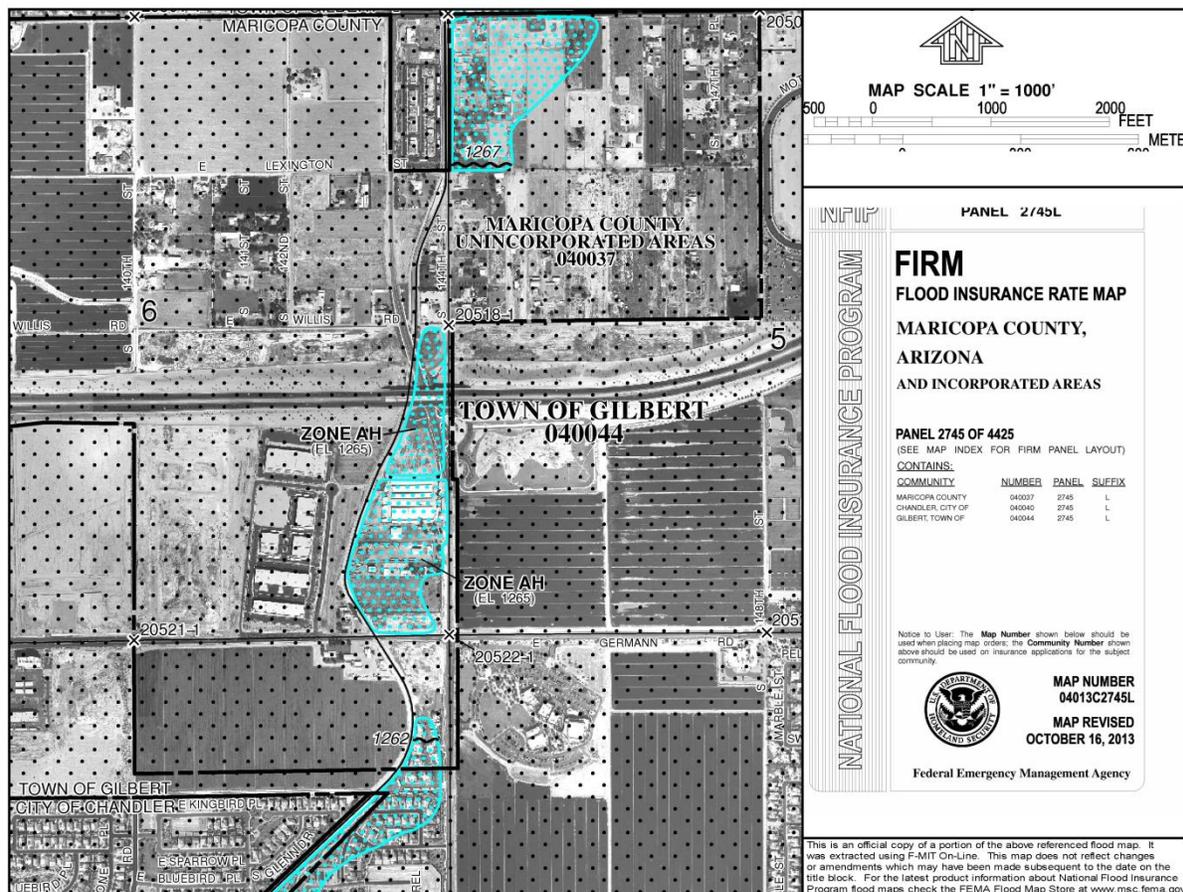


Figure 4 – FIRM Map

2.0 TRAFFIC DATA

The existing daily traffic volumes within the project vicinity are shown in Figure 5. Both Gilbert Road and Val Vista Drive currently carry between 30,000 and 45,000 vehicles per day (vpd) while Lindsay Road carries approximately 12,000 vpd.



Figure 5 – Existing Traffic Volumes

MAG maintains a regional traffic forecasting model to develop future traffic volume projections based on projected socio-economic, population, employment, origin-destination, and other regionally based data. The output from the model includes traffic volumes for general-purpose

and HOV lanes for the regional freeway system. The 2035 model includes all transportation system improvements identified in the RTP through year 2035.

MAG network simulation output was provided for the No-Build and numerous Build Alternatives including:

- Half-diamond interchange at Lindsay Road
- Full-diamond interchange at Lindsay Road
- Partial cloverleaf interchange at Lindsay Road
- Half-diamond interchange at Lindsay Road with westbound collector-distributor roads
- Full-diamond interchange at Lindsay Road with westbound collector-distributor roads
- Partial cloverleaf interchange at Lindsay Road with westbound collector-distributor roads
- Full-diamond interchange at Lindsay Road with westbound collector-distributor roads and a mid-mile crossing at Mustang Drive (140th Street)
- Partial cloverleaf interchange at Lindsay Road with westbound collector-distributor roads and a mid-mile crossing at Mustang Drive (140th Street)
- Partial cloverleaf interchange at Lindsay Road with westbound and eastbound collector-distributor roads

The MAG network output is included in Appendix A. The projected 2035 traffic volumes for each of the Build Alternatives vary slightly. The projected 2035 daily traffic volumes for the No-Build condition are shown in Figure 6. The average 2035 daily traffic volumes with either a half-diamond, full-diamond, or partial cloverleaf interchange at Lindsay Road (without collector-distributor roads) are shown in Figure 7. The 2035 projected volumes for the local street network were adjusted by utilizing the projected growth rate from the MAG model and applying that growth rate to the existing traffic volumes.

As shown in Figure 6, the 2035 traffic projections show dramatic increases in both the east-west and north-south traffic. The daily traffic volumes on Germann Road and Pecos Road are anticipated to nearly double, while the daily volumes on Gilbert Road and Val Vista Drive are anticipated to grow between 30% and 60%.

As shown in Figure 7, the addition of an interchange at Lindsay Road is anticipated to shift traffic from the Gilbert Road and Val Vista Drive interchanges to the Lindsay Road interchange.

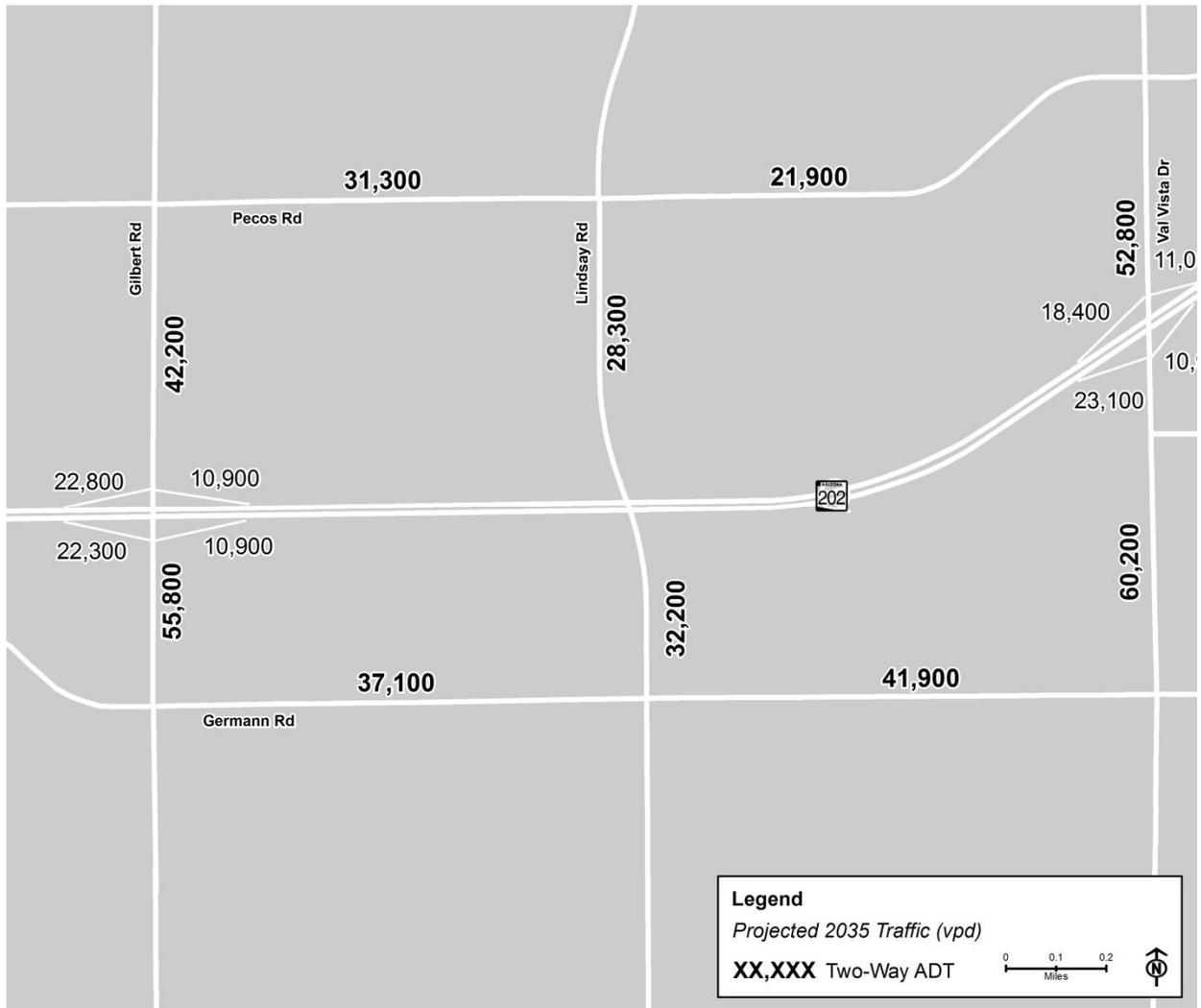


Figure 6 – 2035 No-Build Alternative Traffic Volumes

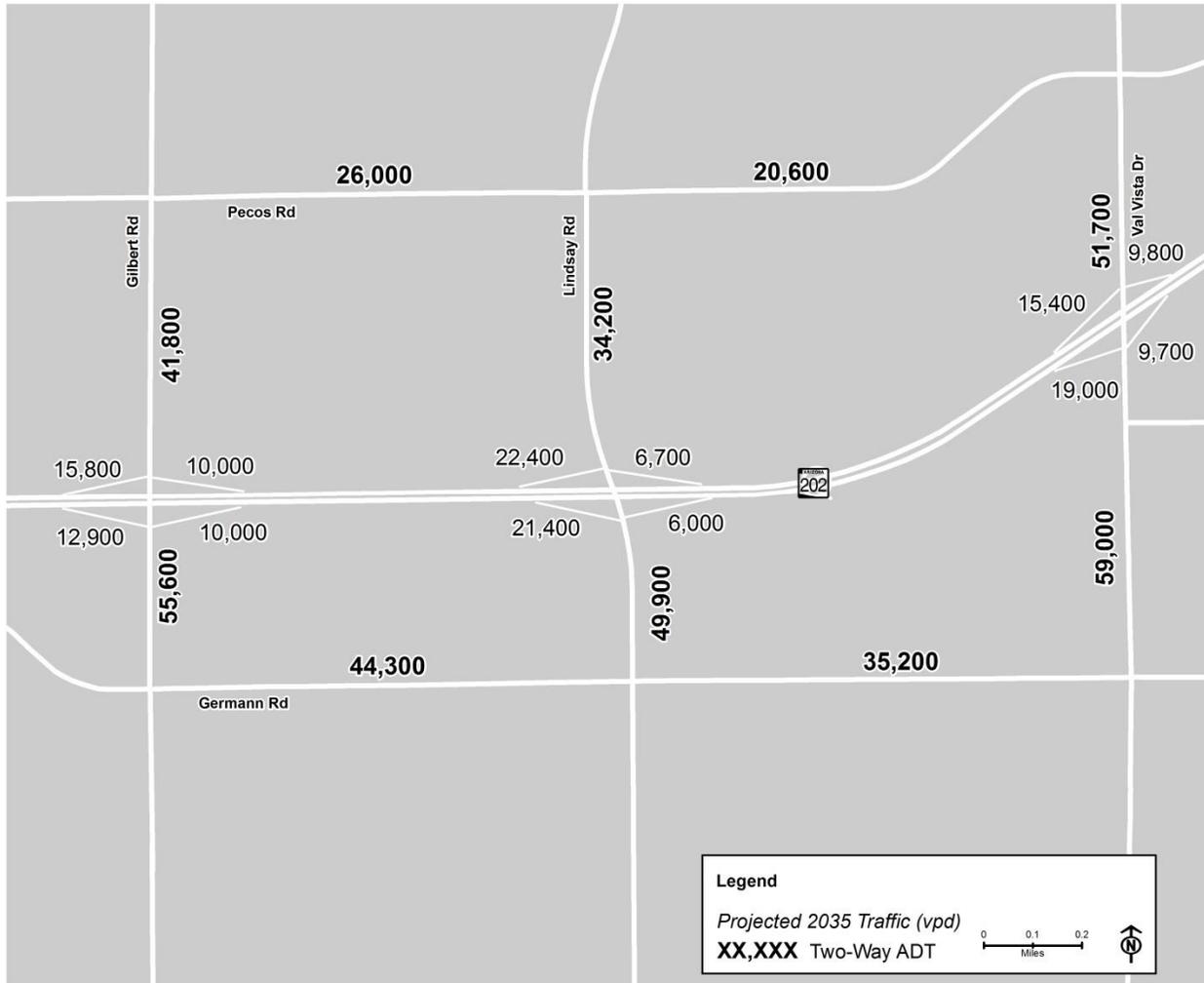


Figure 7 – 2035 Build Alternative Traffic Volumes

3.0 ALTERNATIVE CONCEPTS

The intent of this Feasibility Report is to investigate the issues and constraints associated with a potential new traffic interchange at Lindsay Road and to develop a potential interchange concept. Based on discussions with Town of Gilbert, a review of ADOT as-builts, and a site visit, the following issues were identified:

- Zanjero Park
- RWCD Extension Canal
- Traffic interchange spacing
- Crossroad geometrics
- 144th Street
- Utility impacts
- Traffic operations

Zanjero Park

Zanjero Park is located south of the SR-202L and east of Lindsay Road. The underlying land is owned by ADOT and serves as a drainage basin. Based on the underlying land ownership, it would appear that the primary purposes of this land are transportation and drainage. Through an agreement with ADOT, the Town of Gilbert has constructed Zanjero Park on this parcel. The parcel is owned by ADOT and the park is maintained by the Town of Gilbert. Due to the current land use, this park may be considered for protection under Section 4(f).

Section 4(f) of the Department of Transportation Act of 1966 (49 USC 303) prohibits the use of land of significant publicly owned parks, recreation areas, wildlife and waterfowl refuges, and land of a historic site for transportation projects unless the Federal Highway Administration (FHWA) determines that there is no feasible and prudent avoidance alternative and that all possible planning to minimize harm has occurred.

Due to the underlying land ownership, Section 4(f) protection may not apply. In addition, depending on the source of the funding for design, construction and right-of-way, Section 4(f) may not apply. However, the agreement that allowed the park to be constructed does not clearly require an occupancy permit, and does not clearly include a reversionary clause indicating that no long-term right is created and that the park is a temporary use. Therefore, it may be considered for protection under Section 4(f).

RWCD Extension Canal

The RWCD Extension Canal runs north-south along the west side of Lindsay Road. The underlying land is owned by RWCD and the design and construction of any improvements will need to be coordinated with RWCD. Any impacts to the canal and operations and maintenance activities will need to be mitigated.

The following general guidance was provided by RWCD (subject to change):

- A 4' minimum horizontal offset is needed from the canal liner to any abutment or pier.
- A 7' minimum vertical offset is needed from the bottom of the canal to the bottom of any bridge structure.
- Construction that may affect the canal would need to be conducted in the annual dry-up period which is generally from mid-December to mid-January.

- Continuous maintenance access is needed along the west canal bank.
- Access is needed to the east canal bank under the Lindsay Road overpass.

Roadway crossings of the canal will be needed if ramps are constructed west of Lindsay Road. The locations of the crossings will need to account for vertical clearance over the canal. RWCD suggested that the crossings should span the entire canal and meet the clearance requirements described above. North of the SR-202L, it may be possible to place the ramp on the existing box culvert thereby eliminating the need for a new crossing. However, south of the SR-202L, a new crossing would be needed.

Topographic survey data was not available for this study. Therefore, the elevation difference between the canal and Lindsay Road is unknown. Given the proximity of Lindsay Road to the canal, it may be difficult to meet the vertical clearance requirements. If the clearance requirements cannot be met, limited options may be available given the short construction window during the annual dry-up. It may be feasible to construct a new box culvert immediately adjacent to the existing canal and realign the canal through the new box culvert.

To provide continuous access along the west canal bank, it would be feasible to elevate the ramps and construct equipment under-crossings to allow operations and maintenance (O&M) vehicles to pass under the ramps. The under-crossings would need to be located far enough to the west to allow the ramps to be elevated. RWCD access would need to be provided from the west canal bank to the under-crossings.

The existing Extension Canal crossing of Lindsay Road north of the SR-202L may limit the Lindsay Road cross-section. This constraint will require further investigation during future spotting and design efforts after field survey data has been collected.

RWCD has indicated that they are not in support of this potential project as it would affect their operations and maintenance of the Extension Canal.

Traffic Interchange Spacing

The distance along SR-202L from the Gilbert Road centerline to the Lindsay Road centerline is approximately 5,000'. This spacing would result in traffic interchanges that are slightly less than 1 mile apart. However, this minimal distance (less than 300') is negligible.

Crossroad Geometrics

South of the SR-202L, the existing Lindsay Road centerline curves to the west to an alignment offset from the section line. This curvature occurs at the SR-202L freeway which would result in the ramp alignments being skewed from Lindsay Road. However, the skew angle can meet ADOT requirements (less than 15 degree skew).

144th Street

North of the SR-202L, 144th Street runs along the Lindsay Road section line (Lindsay Road is offset to the west). 144th Street is the primary access for several parcels that front 144th Street. Immediately north of the SR-202L, 144th Street connects to Lindsay Road. This intersection would likely fall within the access control limits along Lindsay Road and the intersection would need to be closed. 144th Street could terminate at Willis Road and the segment south of Willis Road could be closed. Access to 144th Street would still be provided from Lexington Street and Pecos Road.

Utility Impacts

There are numerous existing utilities within Lindsay Road and adjacent to Lindsay Road. A majority of the underground utilities would likely not be affected by the addition of interchange ramps. However, the overhead 69kV power line that runs along the east side of Lindsay Road may be affected.

Traffic Operations

Based on Figure 4, Gilbert Road and Val Vista Drive currently carry between 30,000 and 45,000 vpd. Additional development is planned in the area which will lead to increased traffic volumes on the local roadway network. The addition of entrance and exit ramps at Lindsay Road would provide an additional access location to the SR-202L and could alleviate some of the projected traffic growth on the adjacent streets and ramps. The projected volumes shown in Figure 6 could likely be accommodated by a traditional interchange configuration at Lindsay Road. However, detailed traffic analysis will be needed as part of future planning and design phases.

3.1 POTENTIAL INTERCHANGE CONCEPTS

Based on the information gathered as part of this study, none of the issues discussed above would expressly preclude a conventional diamond interchange at Lindsay Road.

Alternative 1: Full Diamond Interchange

This alternative would construct a conventional full diamond interchange with four ramps to provide access to Lindsay Road, as shown in Figure 8. Lindsay Road would be widened both north and south of SR-202L to provide additional turns lanes at the interchange. The existing Lindsay Road Overpass would remain and Lindsay Road would occupy the eastern span of the existing bridge. A new bridge structure would be constructed to allow the eastbound exit ramp to cross the RWCD Extension Canal. The westbound entrance ramp could be located to utilize the existing box culvert to cross the Extension Canal. Equipment underpasses would be constructed under the eastbound exit and westbound entrance ramps to provide RWCD O&M access along the western canal bank. O&M access roads would be constructed to provide a route from the existing western canal bank to the O&M equipment underpasses. 144th Street would be closed at Willis Road.

Eastbound and/or westbound frontage roads could be constructed between Gilbert Road and Lindsay Road. If constructed as conventional frontage roads, access could be provided to the adjacent parcels. In addition, a mid-mile crossing at Mustang Drive (140th Street) could be constructed to enhance circulation in the area and provide another crossing of the SR-202L.

Alternative 2: Half Diamond Interchange

This alternative would construct a conventional half diamond interchange with two ramps to provide access to Lindsay Road, as shown in Figure 9. Lindsay Road would be widened both north and south of SR-202L to provide additional turns lanes at the interchange. The existing Lindsay Road Overpass would remain and Lindsay Road would occupy the eastern span of the existing bridge. A new bridge structure would be constructed to allow the eastbound exit ramp to cross the RWCD Extension Canal. The westbound entrance ramp would be located to utilize the existing box culvert to cross the Extension Canal. Equipment underpasses would be constructed under the eastbound exit and westbound entrance ramps to provide RWCD O&M

access along the western canal bank. The O&M access roads would be constructed to provide a route from the existing western canal bank to the O&M equipment underpasses. 144th Street would be closed at Willis Road.

Eastbound and/or westbound frontage roads could be constructed between Gilbert Road and Lindsay Road. However, without an eastbound entrance ramp at Lindsay Road, the eastbound frontage road would provide limited benefits. If constructed as conventional frontage roads, access could be provided to the adjacent parcels. In addition, a mid-mile crossing near Mustang Drive (140th Street) could be constructed to enhance circulation in the area and provide another crossing of the SR-202L.

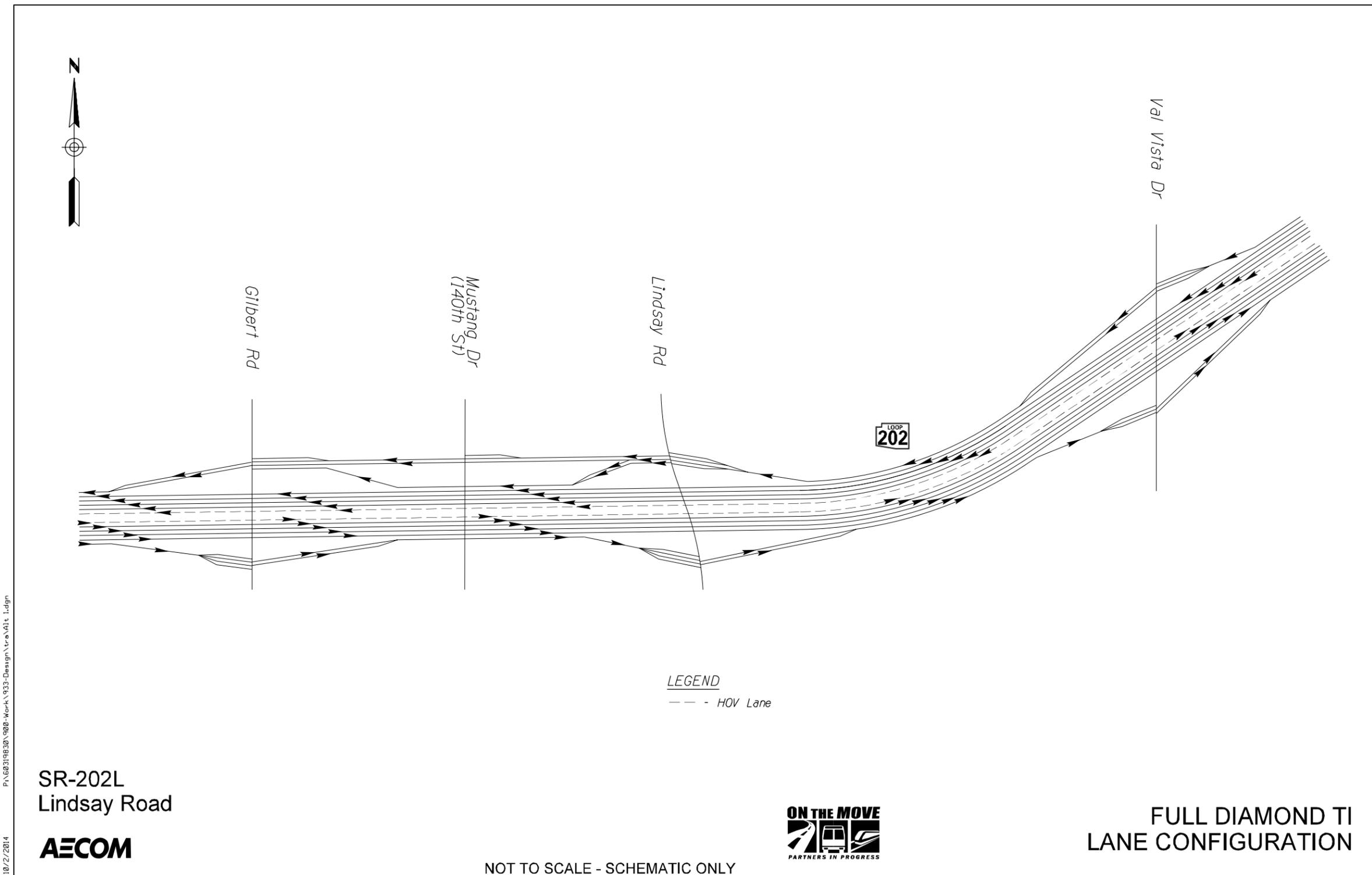
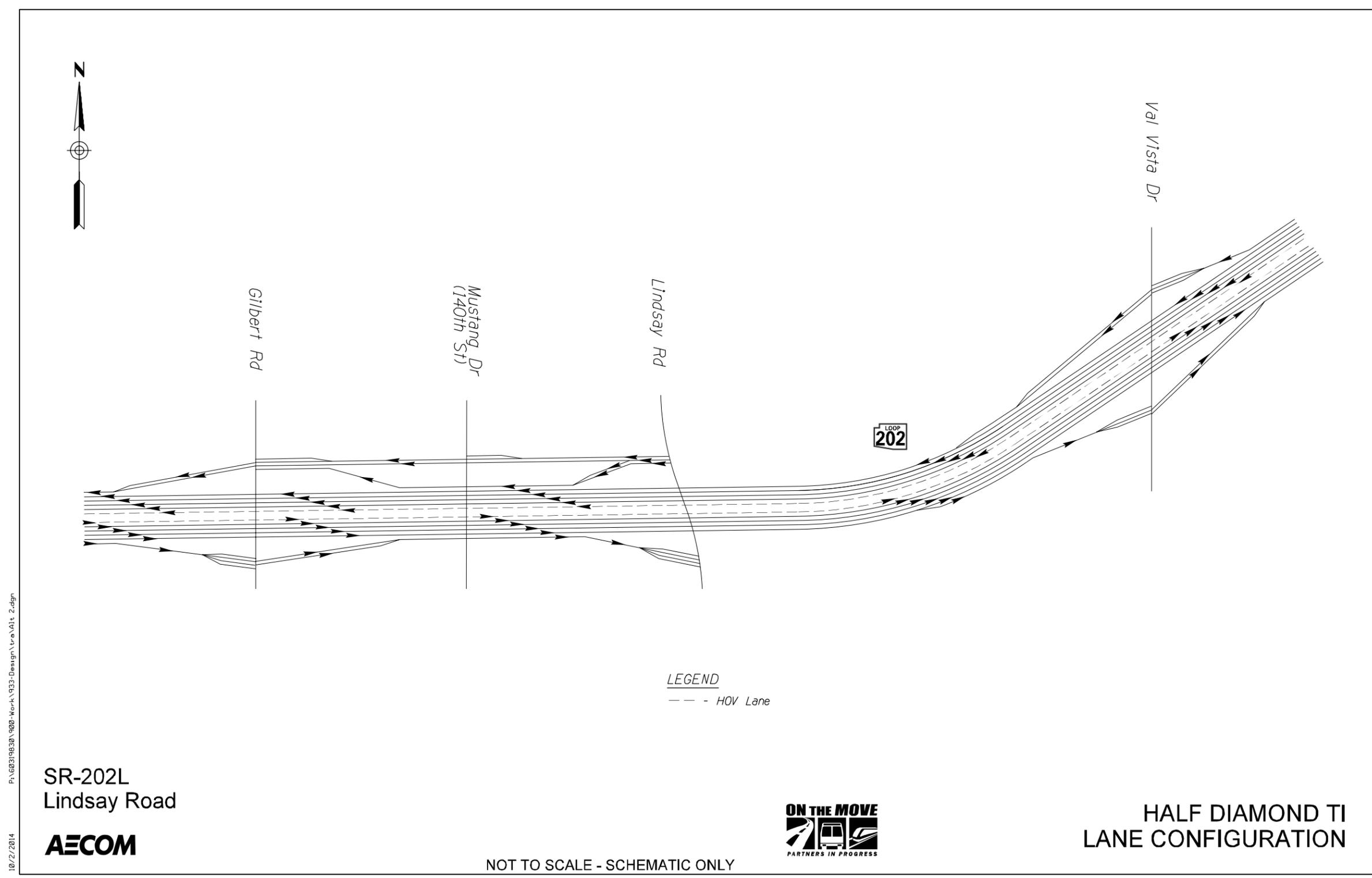


Figure 8 – Full Diamond TI Lane Configuration



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Figure 9 – Half Diamond TI Lane Configuration

4.0 MAJOR DESIGN FEATURES

The potential improvements would include widening the SR-202L mainline to add auxiliary lanes, constructing ramps to provide access to Lindsay Road, widening Lindsay Road to provide turn lanes near the interchange, constructing crossings of the Extension Canal, and constructing O&M underpasses and access roads. The improvements could also include frontage roads to provide access to parcels adjacent to the ADOT right-of-way.

4.1 DESIGN CRITERIA

SR-202L is classified as a controlled access Urban Principal – Freeway/Expressway. A summary of the design controls for SR-202L is provided in Table 1.

Table 1 – Design Controls for SR-202L

Description of Criteria	Values for Design
Design Year:	20 years after opening
Design Speed:	65 mph
Superelevation:	Match existing (0.06 ft/ft maximum)
Cross Slope:	Match existing (2.0%)
Lane Width:	12 ft.
Shoulder Width:	
- Median:	Match existing (8 ft.)
- Outside:	12 ft.
Maximum Gradient:	3%
Taper Rate:	65:1
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16'-6"

A summary of the design controls for the service interchange ramps is provided in Table 2.

Table 2 – Design Controls for Service Interchange Ramps

Description of Criteria	Values for Design
Design Year:	20 years after opening
Design Speed:	
- Nose of gore (exit ramps):	60 mph
- Nose of gore (entrance ramps):	55 mph
- Ramp body:	50 mph
- Ramp terminal:	35 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- Exit ramp:	22 ft., plus 2 ft. offset to barrier
- Entrance ramp:	28 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.

Maximum Horizontal Curve:	6 degree, 53 minutes
Maximum Gradient:	+4%, -5%
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum

A summary of the design controls for the frontage roads is provided in Table 3.

Table 3 – Design Controls for Frontage Roads

Description of Criteria	Values for Design
Design Year:	20 years after opening
Design Speed:	50 mph
Superelevation:	0.04 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	30 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.
Maximum Horizontal Curve:	6 degree, 11 minutes
Maximum Gradient:	5%
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum

4.2 SR-202L CONCEPT

Auxiliary lanes would be constructed along eastbound and westbound SR-202L. The new ramp connections to the mainline would account for the future addition of one general-purpose lane in each direction of travel. Plans for the full diamond and half diamond options are included in Appendix B.

The geometric requirements for frontage roads push the exit and entrance ramps closer together thereby reducing the weaving distance for the auxiliary lane. Design options to mitigate short auxiliary lanes include extending the auxiliary lane beyond the exit ramp and dropping the lane after the exit ramp, or constructing a two-lane exit with one lane being a forced exit and the second lane being an optional exit (exit or through). A traffic analysis would be needed during future planning and design phases to assess the operations along the SR-202L.

4.3 LINDSAY ROAD TRAFFIC INTERCHANGE

The Lindsay Road interchange could be either a full diamond or half diamond interchange. Widening would be needed along Lindsay Road to provide additional turn lanes at the interchange. The clear opening on the eastern bridge span will accommodate a 4-lane cross-section with dual left-turn lanes. A 6-lane cross-section with dual left-turn lanes would likely need to include reduced lane widths (possibly 11' wide through lanes) to fit within the existing span.

The existing asphalt concrete pavement along Lindsay Road near the interchange would be repaved with portland cement concrete pavement (PCCP). 144th Street would be closed at Willis Road.

A new bridge structure would be constructed to allow the eastbound exit ramp to cross the RWCD Extension Canal. The westbound entrance ramp could be located to utilize the existing box culvert to cross the Extension Canal. Equipment underpasses would be constructed under the eastbound exit and westbound entrance ramps to provide RWCD O&M access along the western canal bank. O&M access roads would be constructed to provide a route from the existing western canal bank to the O&M equipment underpasses. Driveways along southbound Lindsay Road would be needed between the ramp terminals to provide access to the eastern canal bank.

Topographic survey data was not available for this study. Therefore, the elevation difference between the canal and Lindsay Road is unknown. Given the proximity of Lindsay Road to the canal, it may be difficult to meet the vertical clearance requirements. If the clearance requirements cannot be met, limited options may be available given the short construction window during the annual dry-up. It may be feasible to construct a new box culvert using accelerated construction methods such as pre-cast box culvert sections and/or the use of high-early strength concrete. Constructing a new culvert immediately adjacent to the existing canal and realigning the canal through the new box culvert may not be feasible due to the existing easement and land rights.

The existing Extension Canal crossing of Lindsay Road north of the SR-202L may limit the Lindsay Road cross-section or require extending the existing culvert. This constraint will require further investigation during future scoping and design efforts after field survey data has been collected.

The Santan Vista Trail follows the Eastern Canal/Extension Canal for its entire length as it runs northeast-southwest from Baseline Road on the north to Queen Creek Road on the south. This trail would need to cross Lindsay Road and cross through the traffic interchange. North of the SR-202L, the trail could be located along the east side of Lindsay Road. The trail could cross Lindsay Road and the traffic interchange at-grade and continue along the Extension Canal to the south.

4.4 OTHER POTENTIAL IMPROVEMENTS

A westbound frontage road could be constructed prior to the interchange, with the interchange, or after the interchange. In addition, a mid-mile crossing of the SR-202L could be constructed near Mustang Drive (140th Street). The frontage road would accommodate one-way traffic flow and would contain two travel lanes. The frontage road would be constructed at-grade and would provide access to the adjacent parcels. If implemented with a mid-mile crossing, the frontage road would need to be elevated near the mid-mile crossing to connect to the north-south roadway.

If constructed, the Town of Gilbert would likely be responsible for the maintenance of the frontage road.

4.5 ACCESS CONTROL

Existing access control along SR-202L will be maintained in accordance with ADOT policy requirements. Access control would be acquired along Lindsay Road within 300' of the interchange in accordance with ADOT requirements. If a traditional frontage road is constructed along the SR-202L, the access control line would need to be moved from the R/W fence to the freeway side of the frontage road. According to ADOT guidelines, access would not be allowed to the frontage within 100' of the ramp/frontage road gore, as shown in Figure 10. Direct access to collector-distributor roads or extended ramps would not be permitted.

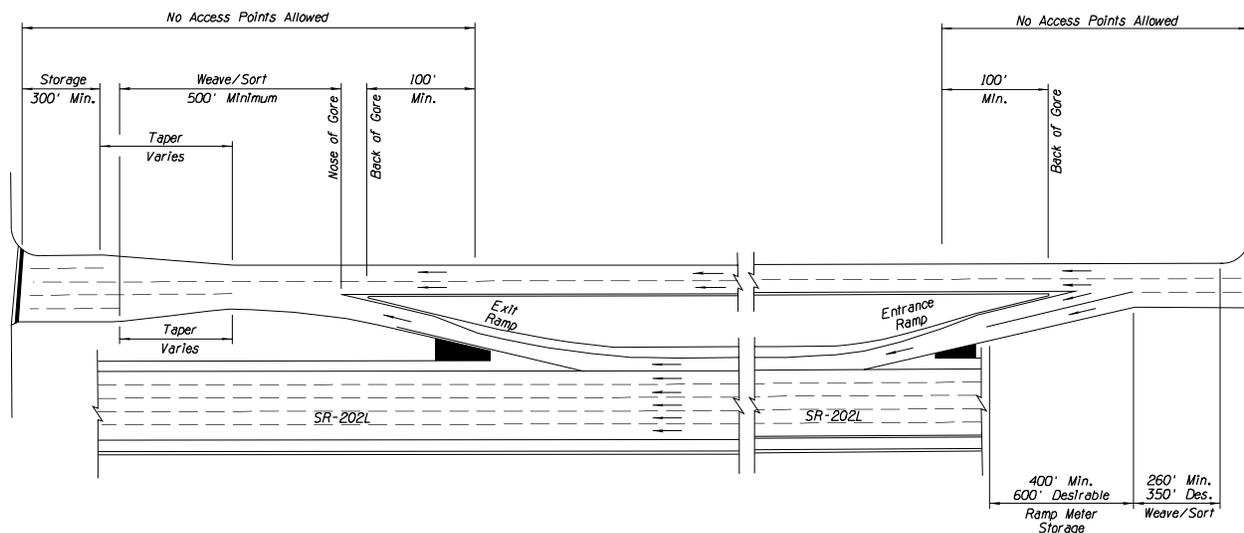


Figure 10 – Frontage Road Access Control

4.6 TRAFFIC DESIGN

A traffic analysis would be needed during future planning and design phases to assess the operations along the SR-202L and the turn lane and storage requirements along the ramps and Lindsay Road.

Existing signs in conflict with the ramp construction would need to be moved. A signing concept for a new interchange at Lindsay Road was not developed. Advance guide signs would need to be modified or replaced to include the new Lindsay Road exit ramps. New guide signs would also be needed along Lindsay Road. The final sign locations would be determined during the development of the final design plans and would consider the existing and new locations of utilities, bridge structures, retaining and noise walls, drainage features, lighting standards, FMS components, and other appurtenances.

The SR-202L mainline would need to be striped to include the addition of auxiliary lanes. The pavement marking design would be developed in accordance with applicable provisions of the current version of the ADOT Signing and Marking Standard Drawings that reference the requirements for lane lines, edge lines, gore striping, and intersection pavement markings.

Existing lights in conflict with the ramp construction would need to be moved. A lighting analysis was not conducted as part of this study. Lighting design along SR-202L would conform to ADOT requirements and standards. Lighting design on Lindsay Road would conform to the requirements of the Town of Gilbert. Traffic signals would be installed at the ramp intersections. If the Town were to agree to maintain the signals, the signals would conform to Town standards. Otherwise, the signal designs would conform to ADOT standards.

4.7 DRAINAGE DESIGN

This project would generally maintain existing drainage patterns. The increased paved areas would result in a slight increase in the runoff. It was assumed that the existing on-site drainage facilities could be maintained and that additional drainage facilities would only be necessary to convey flows to the existing system. Any loss of storage volume from the Zone AH floodplain would need to be replaced by excavating within the same storage area. In addition, conveyance pipes may need to be installed under the ramp to mitigate impacts to the floodplain. Detailed drainage analysis will be needed during future scoping and design phases.

4.8 UTILITY COORDINATION

Utility companies were not contacted as part of this study. During final design, each utility agency would receive and review the design plans for the project. Utility conflicts will be identified with cooperation from the affected utility agencies. Construction plans for the relocations and/or adjustments of these utilities would be developed to mitigate the identified conflicts.

The major utility agencies that appear to be in conflict with the potential improvements include SRP Power and RWCD.

4.9 STRUCTURES

The existing Lindsay Road Overpass would not be affected by this project. The existing retaining walls along the SR-202L are offset from the existing mainline to accommodate a future additional general-purpose lane along the SR-202L. A new structure would be needed for the eastbound exit ramp to cross the RWCD Extension Canal. The existing Extension Canal crossing of Lindsay Road north of the SR-202L may need to be extended to account for a widened Lindsay Road cross-section. Due to the proximity of the pump station north of Lindsay Road, the extension would need to occur to the south. Due to the limited construction window during the RWCD dry-up period (1 month), extending the box culvert would require the use of expedited construction methods such as pre-cast box culvert sections and/or the use of high-early strength concrete.

4.10 GEOTECHNICAL AND PAVEMENT DESIGN

Geotechnical investigations were not conducted as part of this study. In addition, existing geotechnical field data from previous projects was not reviewed. Detailed geotechnical investigations would be required during the final design phase.

The mainline widening would likely utilize the same pavement section as the adjacent travel lanes. The ramps would be constructed of a PCCP section. Lindsay Road would likely consist of a PCCP section within the limits of the interchange. If included as part of the project, frontage roads would also be constructed with a PCCP section.

4.11 RIGHT-OF-WAY

New right-of-way and construction easements would likely be required for this project as shown in Appendix B. Temporary construction easements (TCEs) may be required if temporary access is needed for construction outside of the R/W. The right-of-way requirements and TCE locations and limits would be finalized during future design phases.

4.12 ENVIRONMENTAL

The level of environmental documentation would need to be determined in consultation with ADOT and FHWA. A federal-level document would be required if a federal action is needed related to funding (from FHWA), the involvement of a federal regulatory agency such as 404 permitting (through the USACE), the involvement of a federal land management agency such as the BLM or BOR, or the approval of a change of access from FHWA for activities on the Interstate System (not applicable to this project). A state-level document may be required for activities that do not have a federal action.

Based on the information gathered for this study, the following elements appear to be relevant at this location:

- Section 4(f) – possibly for the Zanjero Park (recreational land use) and possibly for the Extension Canal (potential historic feature)
- Biology – due to burrowing owl habitat within Zanjero Park
- Clean Water Act Section 404 – possibly related to the Extension Canal if it conveys surface water and drains to a natural watercourse
- Noise
- Air quality
- Hazardous materials
- Cultural resources

Section 4(f) applies to projects that receive funding from or require approval by an agency of the U.S. Department of Transportation. If U.S. DOT funding is not used and approval is not required by an agency of the U.S. DOT, then Section 4(f) would not apply. When FHWA determines that a project may impact a Section 4(f) property, there are three methods available for FHWA to approve the use of a Section 4(f) property:

1. Preparing a *de minimis* impact determination;
2. Applying a programmatic Section 4(f) evaluation; or
3. Preparing an individual Section 4(f) evaluation.

A *de minimis* impact determination can be used when the project would not adversely affect the activities, features, or attributes qualifying a park for protection under Section 4(f). A use of Section 4(f) property having a *de minimis* impact can be approved by FHWA without the need to develop and evaluate alternatives that would avoid using the Section 4(f) property.

For parks and recreation areas, the agency with jurisdiction over the 4(f) property must be informed of the intent to make a *de minimis* impact determination, after which an opportunity for public review and comment must be provided. After considering any comments received from the public, if the agency with jurisdiction concurs in writing that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection, then FHWA may finalize the *de minimis* impact determination.

An individual Section 4(f) evaluation must be completed if the use results in a greater than *de minimis* impact and a programmatic Section 4(f) evaluation cannot be applied to the situation. The individual Section 4(f) evaluation would include the evaluation of the proposed use of Section 4(f) property. The individual Section 4(f) evaluation requires two findings:

1. That there is no feasible and prudent alternative that completely avoids the use of Section 4(f) property; and
2. That the project includes all possible planning to minimize harm to the Section 4(f) property resulting from the transportation use.

Unless the use of a Section 4(f) property is determined to have a *de minimis* impact, FHWA must determine that no feasible and prudent avoidance alternative exists before approving the use of such land.

Actions that could be taken to avoid or minimize Section 4(f) issues include:

- Amending the agreement with ADOT to expressly state that no long-term right is or has been created, that the primary uses are for transportation and drainage, and that the use of the land for the park can be terminated by either ADOT or the Town.
- Removing the existing features that would be affected by the ramp and amending the agreement with ADOT to clearly redefine the limits of the park.
- Developing a park master plan which includes an interchange at Lindsay Road and accounts for any potential impacts of the interchange.

Through an agreement between the Town, ADOT, and Arizona Game and Fish Department, a burrowing owl habitat was created in Zanerjo Park in 2011. Burrowing owls are protected by the Migratory Bird Treaty Act and they are considered by the U.S. Fish and Wildlife Service to be a Bird of Conservation Concern. Assuming that the owl habitat was constructed within the main body of the park, and not adjacent to the existing freeway, the construction of ramps should have minimal impact on the habitat. However, a Biological Evaluation should be conducted during future scoping phases to determine if mitigation measures are needed.

5.0 COST ESTIMATE

Planning-level cost estimates were prepared for the full diamond TI, half diamond TI, westbound frontage road, and Mustang Drive (140th Street) crossing. These high-level estimates were developed to provide an order-of-magnitude estimate for the implementation of the different improvements. Cost estimate back-up is included in Appendix C. The cost estimates include the following assumptions:

- All freeway, ramp, and frontage road paving would be PCCP
- Lindsay Road would be paved with PCCP near the TI and asphalt concrete away from TI
- The Lindsay Road eastbound exit ramp can be designed to meet vertical clearance requirements for a bridge across the Extension Canal; costs to construct a box culvert crossing were not included
- The Lindsay Road widening may not fit on the existing Extension Canal box culvert north of SR-202L; costs to extend the culvert have been included
- The Lindsay Road eastbound exit and westbound entrance ramps would be designed to provide an O&M crossing under the ramps
- The trail along the Extension Canal can cross Lindsay Road and the traffic interchange at-grade and therefore, a trail underpass is not required
- The Zanjero Park parking lot can be relocated to the south within the park such that R/W acquisition would not be necessary
- \$250,000 is included in the estimate for the Full Diamond TI for the relocation of the Zanjero Park parking lot
- Costs have been included for the removal of pavement for 144th Street; however, costs were not included for other improvements that may be needed elsewhere (possibly on Lexington Street) as a result of closing 144th Street
- If necessary, excavation can occur within the floodplain to replace storage volume lost to the embankment such that a Conditional Letter of Map Revision/Letter of Map Revision would not be required
- R/W acquisition costs are estimated at \$3 per square foot

Table 4 – Planning-Level Estimates

Full Diamond TI	
Construction	\$13,491,600
Construction Engineering (9%)	\$1,215,000
Construction Contingencies (5%)	\$675,000
Indirect Cost Allocation (10.39%)	\$1,402,000
Engineering Design (8%)	\$1,080,000
Right-of-Way	\$297,900
Total	\$18,161,500
Half Diamond TI	
Construction	\$9,064,300
Construction Engineering (9%)	\$816,000
Construction Contingencies (5%)	\$454,000
Indirect Cost Allocation (10.39%)	\$942,000
Engineering Design (8%)	\$726,000
Right-of-Way	\$297,900

Total	\$12,300,200
Westbound Frontage Road	
Construction	\$3,881,400
Construction Engineering (9%)	\$350,000
Construction Contingencies (5%)	\$195,000
Indirect Cost Allocation (10.39%)	\$404,000
Engineering Design (8%)	\$311,000
Right-of-Way	\$0
Total	\$5,141,400
Mustang Drive (140th Street) Crossing	
Construction	\$5,673,400
Construction Engineering (9%)	\$511,000
Construction Contingencies (5%)	\$284,000
Indirect Cost Allocation (10.39%)	\$590,000
Engineering Design (8%)	\$454,000
Right-of-Way	\$0
Total	\$7,512,400

The estimates above assume that the Lindsay Road eastbound exit ramp can be designed to meet vertical clearance requirements for a bridge across the Extension Canal. If this is not feasible, and a box culvert crossing must be constructed in the canal, additional costs are anticipated as this would require the use of expedited construction methods within the canal. It is anticipated that the culvert construction would increase the total cost for either the full TI or the half TI by approximately \$870,000.

6.0 INTERCHANGE DEVELOPMENT PROCESS

ADOT has established a handbook for requesting new traffic interchanges or modifications to existing interchanges. The policy requires that entities proposing the change adequately assess and mitigate impacts on the state highway system. Applicants are required to conduct the appropriate level of technical and environmental analysis/studies, public outreach, community involvement and government relations as determined by ADOT.

The *Privately Funded Interchange Development Process Requirements Handbook* (see Appendix D) provides the instructions needed to complete the process, as well as ADOT contact information and requirements. According to this document, the process would initiate with the Town of Gilbert contacting the ADOT Phoenix Construction District. Following this initial contact, a “Letter of Intent” would be sent to the ADOT Director. Once an ADOT Project Manager has been identified, a series of “Pre-Application” meetings with ADOT management and technical groups would occur to:

- Determine whether the proposed interchange is consistent with ADOT requirements and discuss the requirements of all ADOT sections with regard to the applicant’s proposal.
- Evaluate the general feasibility of a proposed project, including early identification of any anticipated technical and/or controversial issues.
- Review the proposed project for consistency with the Regional Transportation Plan and the Statewide Long Range Transportation Plan.
- Identify scope of studies required in accordance with the Project Development Process Manual.
- Discuss right-of-way requirements.
- Discuss an initial determination of the level of environmental analysis required. A state-level document may be required for activities that do not have a federal connection.
- Discuss public and agency involvement requirements.
- Identify access permitting requirements.
- Discuss the cost of application processing. The applicant is responsible for all costs associated with the preparation and processing of the application.
- Discuss FHWA consultation and involvement.
- Review the project development process with regard to utility coordination, design, and clearance.

The requesting agency/entity will be responsible for all costs associated with the evaluation of proposals for new interchanges or modifications to the existing interchanges, development, and construction administration. There will be multiple Joint Project Agreements (JPAs) required to cover development, design, construction, right-of-way, and maintenance, as applicable.

The project development, design, and public/agency involvement process will require the following reports to be submitted for approval prior to the design of improvements:

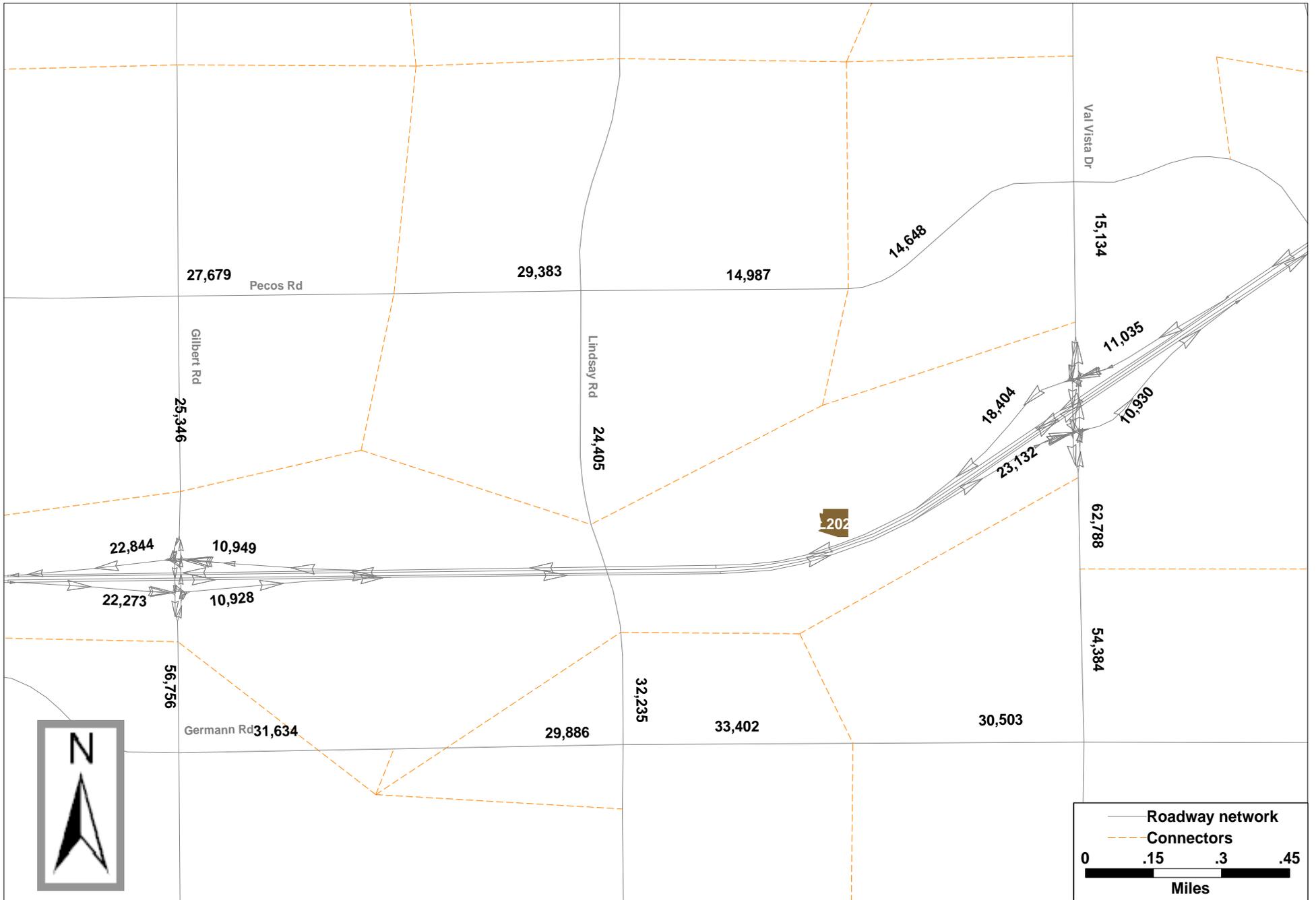
- Design Concept Report
- Traffic Report/Impact Analysis

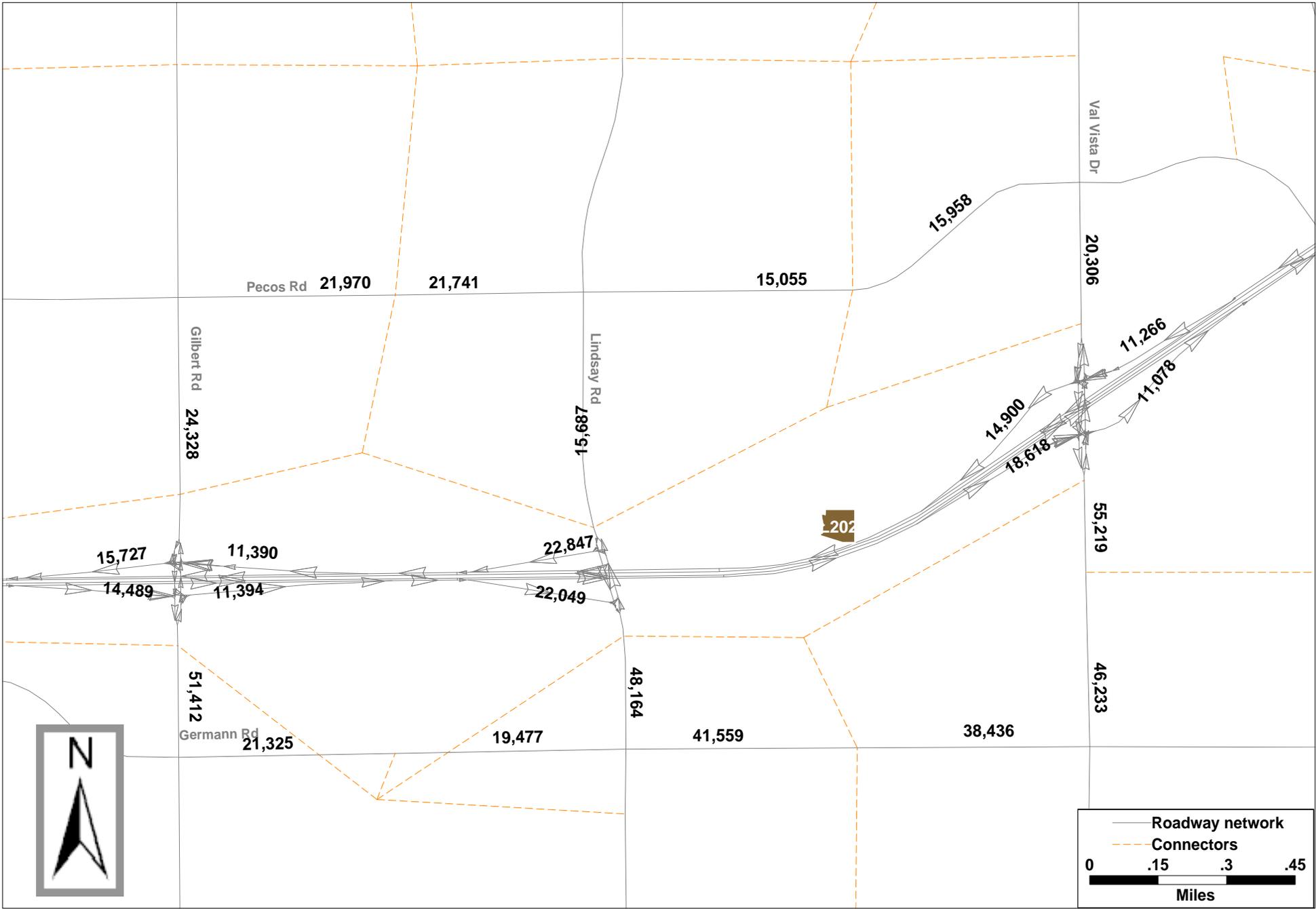
- Environmental Documentation and Report
- Geotechnical Report
- Bridge Foundation Report
- Drainage Report
- Bridge Selection Report
- Change of Access Report (if applicable)
- Proposed Development/Design/Construction Schedules
- Public Involvement Plan/Report
- Right-of-Way Requirements
- Utility and Railroad Requirements

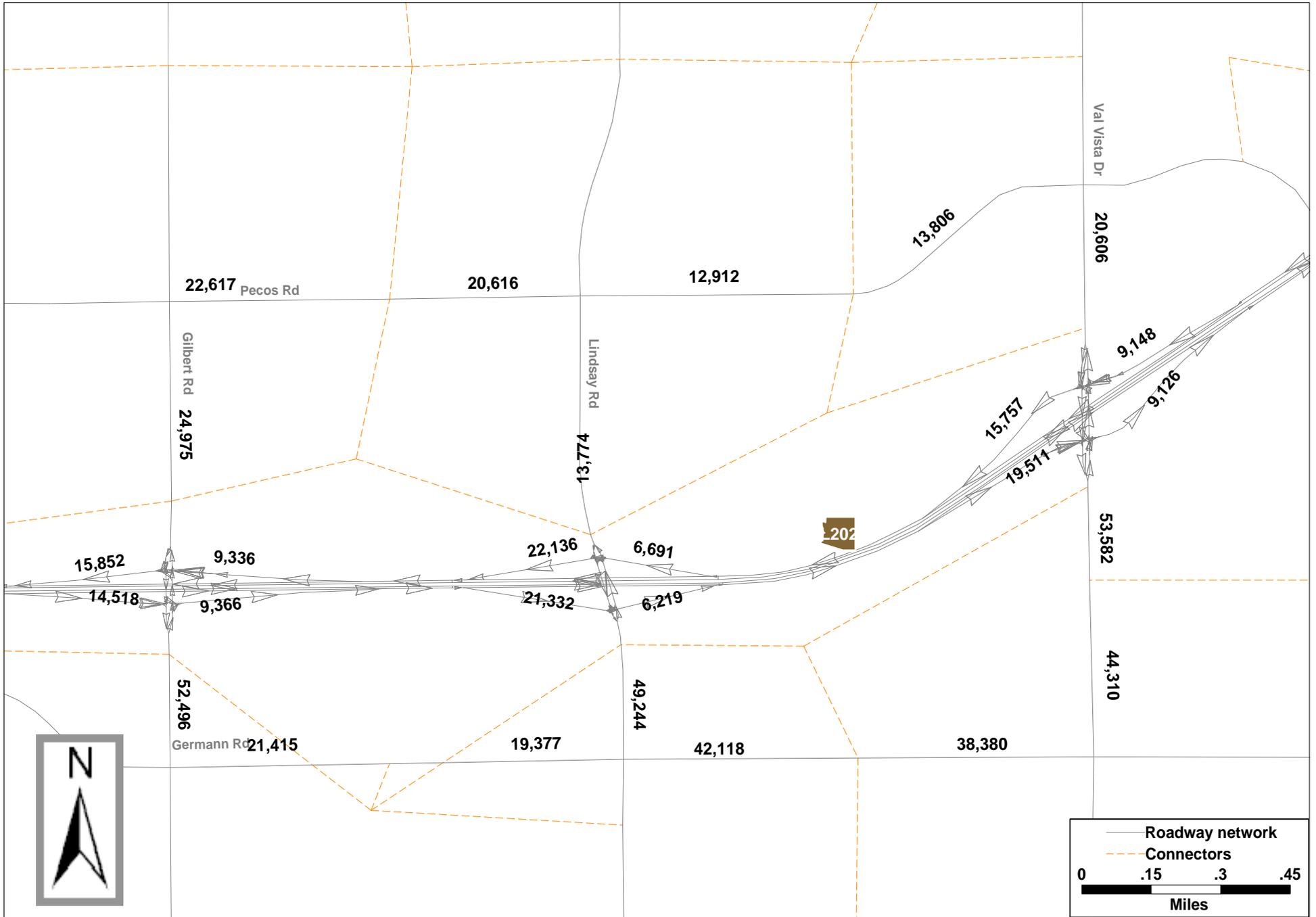
All reports will need to conform to the respective ADOT technical areas' report requirements.

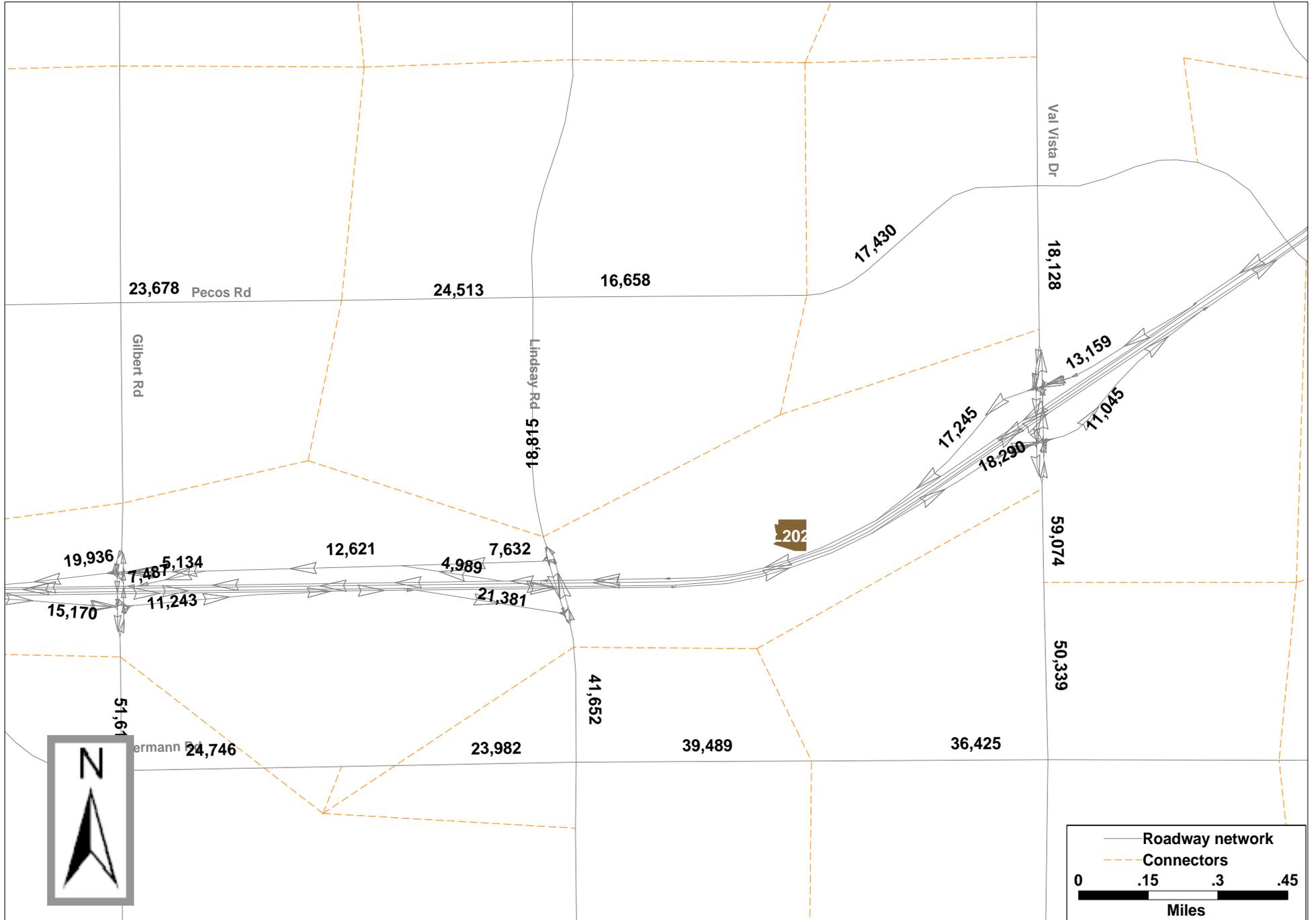
Appendix A

MAG Model Daily Volume for Year 2035 Base Scenario



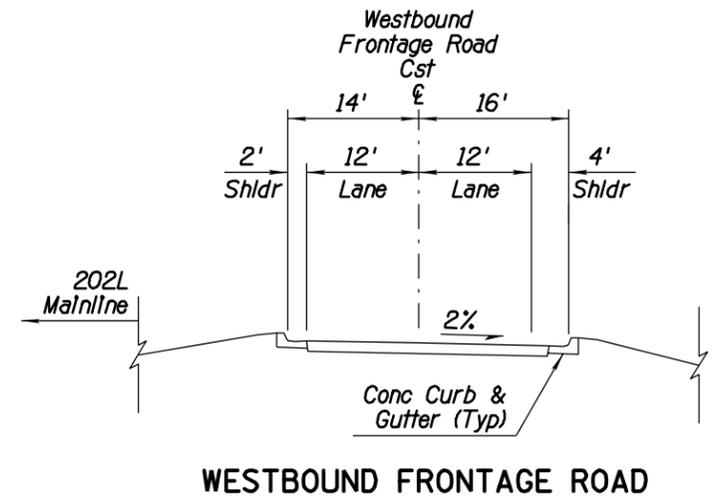
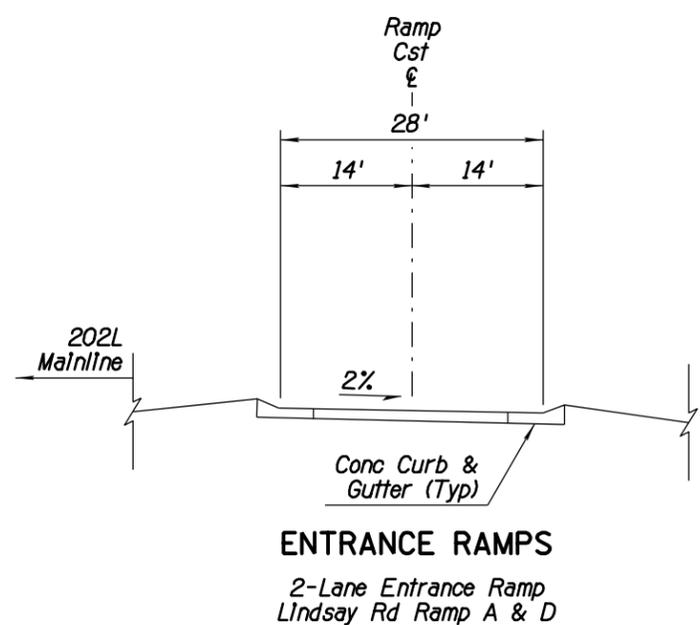
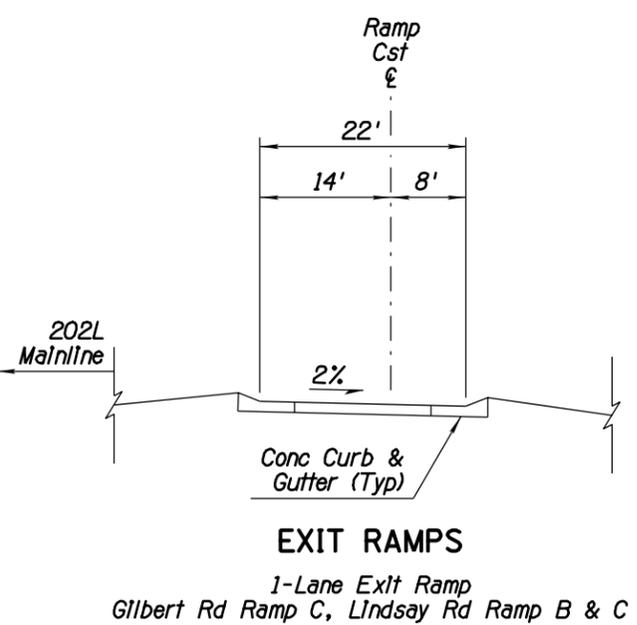
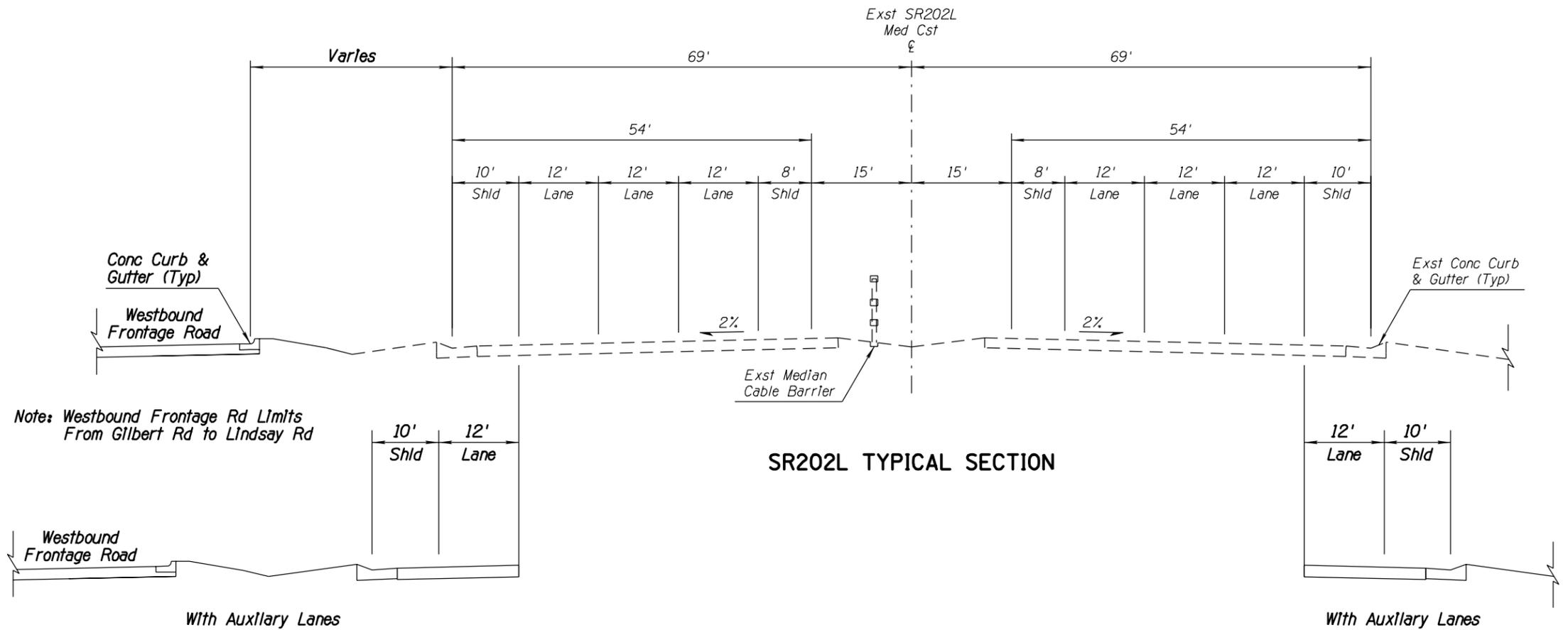




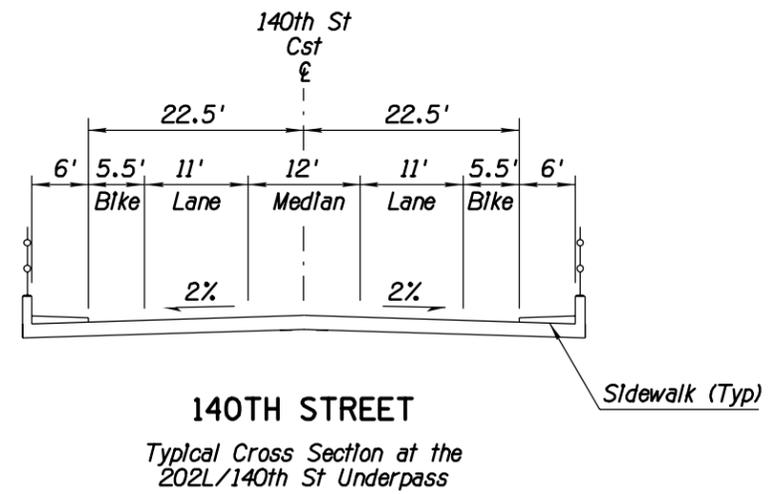
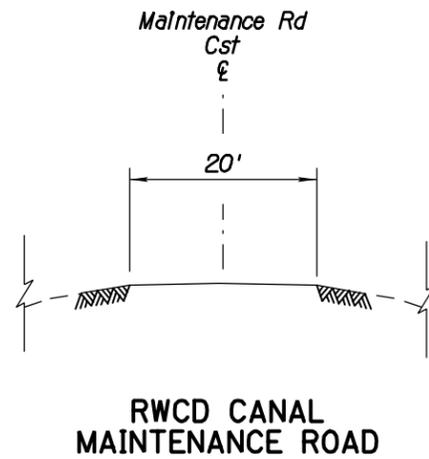
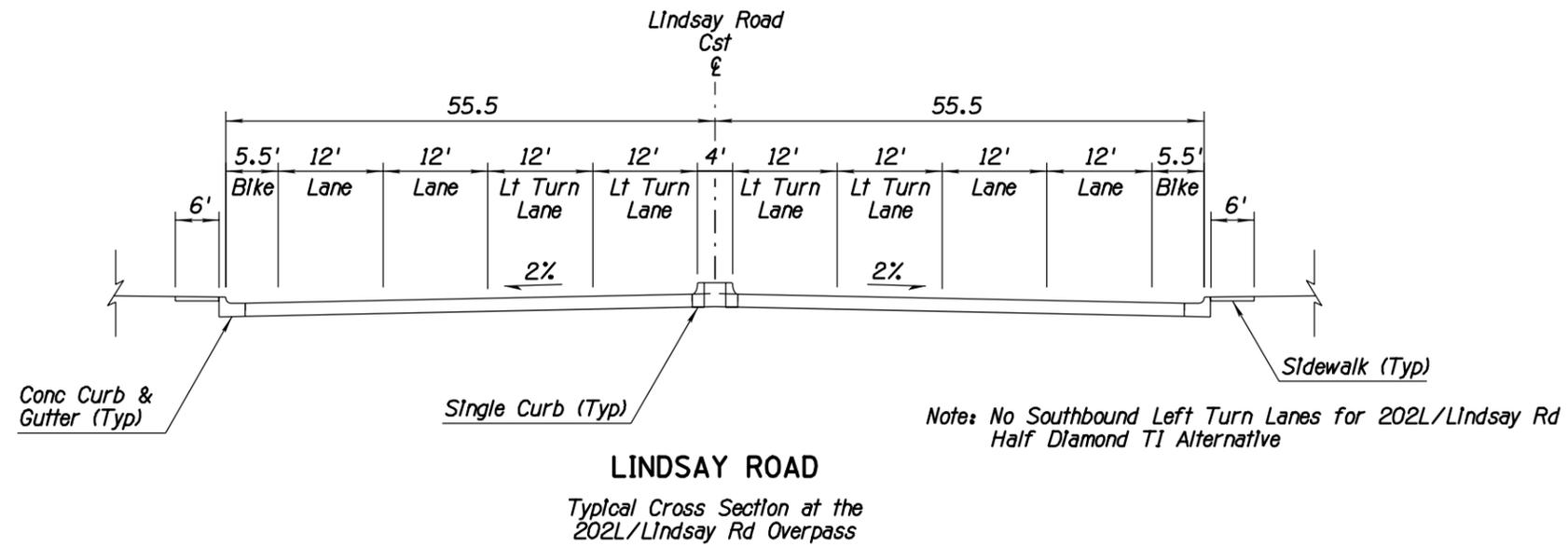


Appendix B

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.



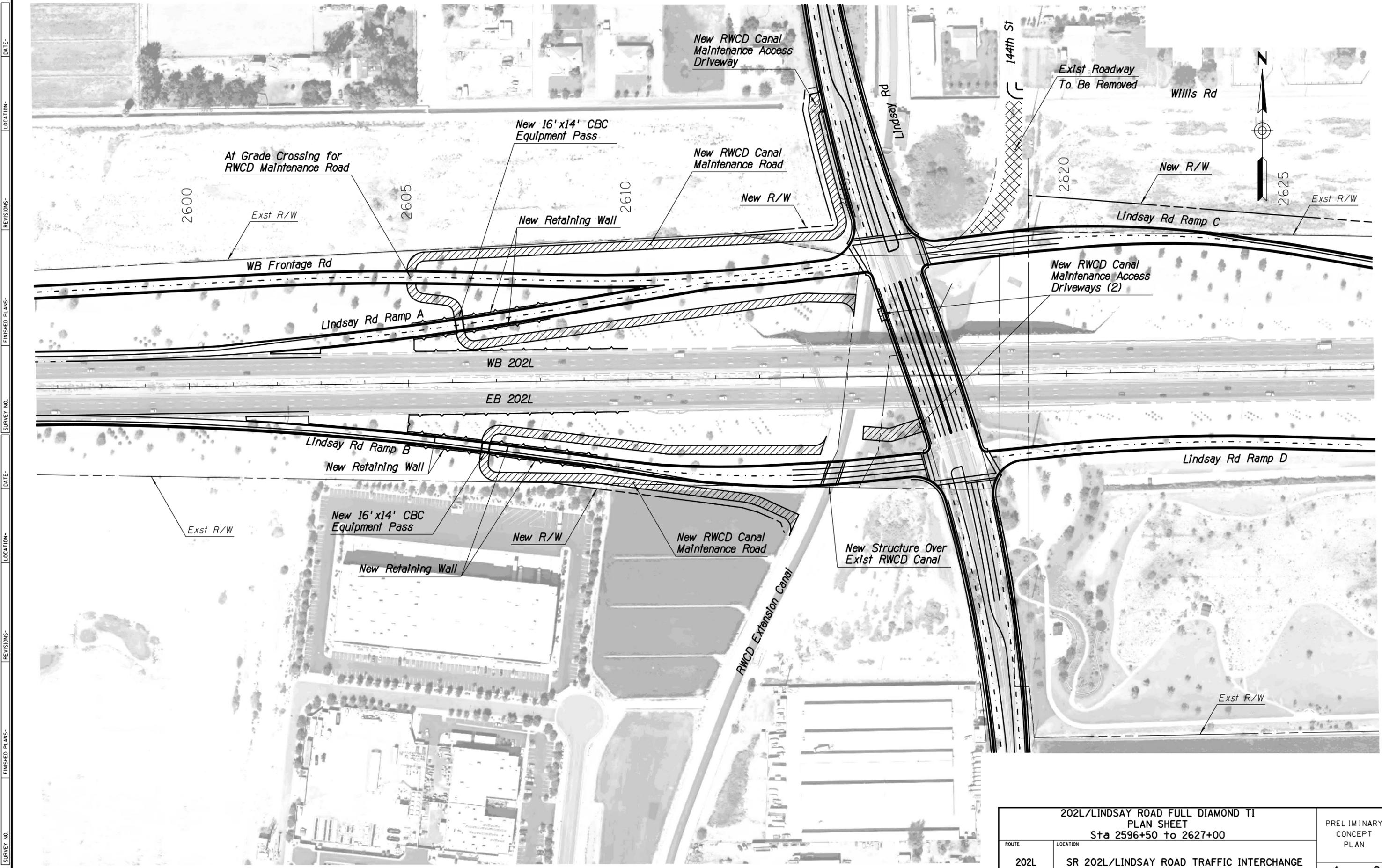
TYPICAL SECTIONS		PRELIMINARY CONCEPT PLAN
ROUTE	LOCATION	
202L	SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	1 OF 9



TYPICAL SECTIONS		PRELIMINARY CONCEPT PLAN
ROUTE	LOCATION	
202L	SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	<u>2 OF 9</u>



202L/LINDSAY ROAD FULL DIAMOND TI PLAN SHEET Sta 2567+00 to 2596+50		PRELIMINARY CONCEPT PLAN
ROUTE 202L	LOCATION SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	
		<u>3</u> OF <u>9</u>



SURVEY NO. FINISHED PLANS- REVISIONS- LOCATION- DATE-
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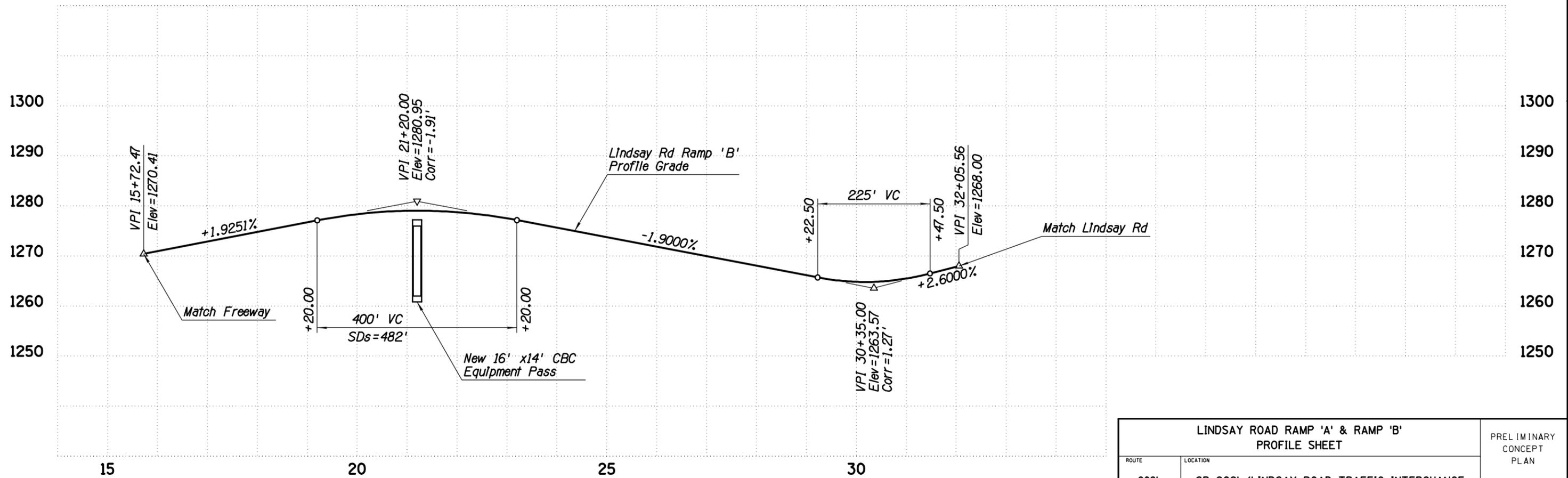
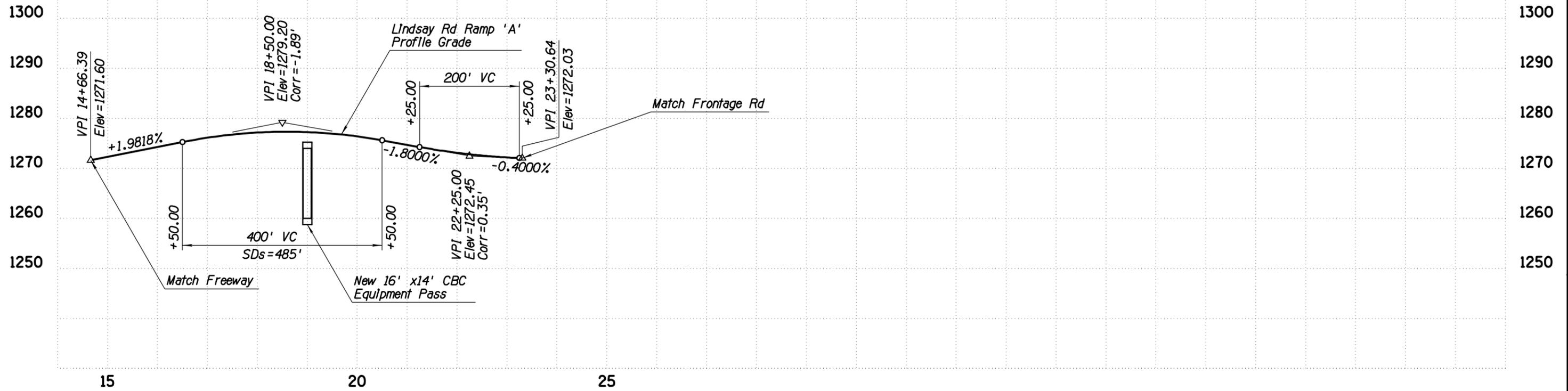
202L/LINDSAY ROAD FULL DIAMOND TI PLAN SHEET Sta 2596+50 to 2627+00		PRELIMINARY CONCEPT PLAN 4 OF 9
ROUTE 202L	LOCATION SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	

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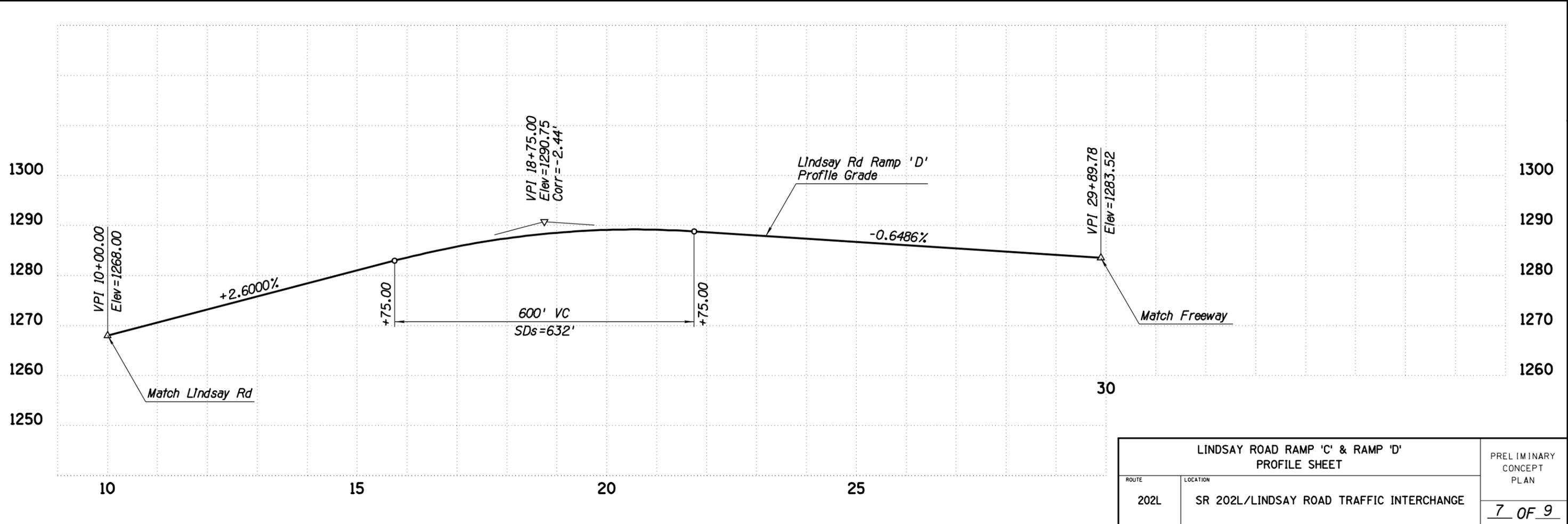
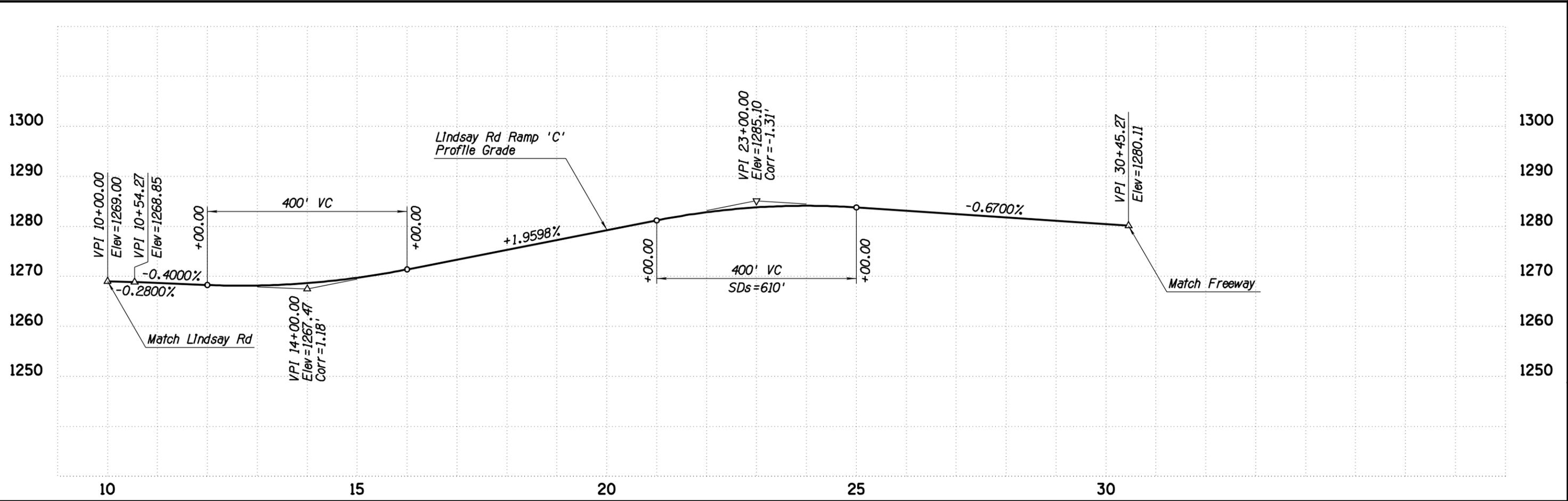


202L/LINDSAY ROAD FULL DIAMOND TI PLAN SHEET Sta 2627+00 to 2657+00		PRELIMINARY CONCEPT PLAN 5 OF 9
ROUTE 202L	LOCATION SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	

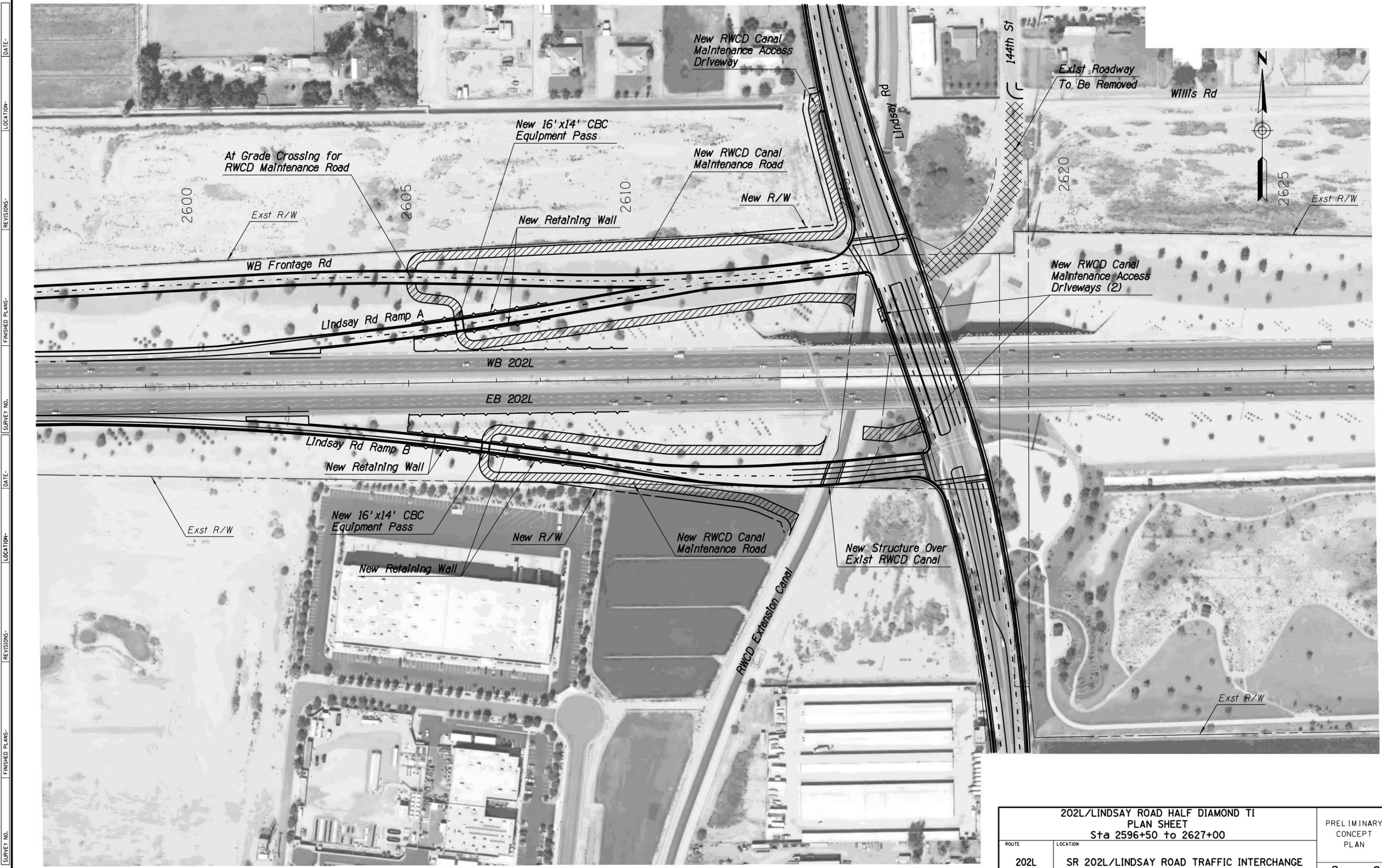
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LINDSAY ROAD RAMP 'A' & RAMP 'B' PROFILE SHEET		PRELIMINARY CONCEPT PLAN
ROUTE	LOCATION	
202L	SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	6 OF 9



LINDSAY ROAD RAMP 'C' & RAMP 'D' PROFILE SHEET		PRELIMINARY CONCEPT PLAN
ROUTE	LOCATION	
202L	SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	7 OF 9



202L/LINDSAY ROAD HALF DIAMOND TI PLAN SHEET Sta 2596+50 to 2627+00		PRELIMINARY CONCEPT PLAN <hr/> 8 OF 9
ROUTE 202L	LOCATION SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	

SURVEY NO. FINISHED PLANS- REVISIONS- LOCATION- DATE-
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202L/LINDSAY ROAD HALF DIAMOND TI PLAN SHEET Sta 2627+00 to 2657+00		PRELIMINARY CONCEPT PLAN
ROUTE 202L	LOCATION SR 202L/LINDSAY ROAD TRAFFIC INTERCHANGE	
		<u>9</u> OF <u>9</u>

Appendix C

**ESTIMATE OF PROBABLE COST
SR202L/LINDSAY RD TI - CONSTRUCT FULL TI**

Project No.: 60319830

Project Description: 202L/Lindsay Rd TI

Full Diamond TI Alternative

ITEM DESCRIPTION	UNIT	QUANTITY	Unit Price (\$)	Amount (\$)
CLEARING AND GRUBBING	L.SUM	1	50,000.00	50,000
REMOVAL OF PAVEMENT	SQ.YD.	20,100	2.50	50,300
REMOVAL OF CONCRETE CURB & GUTTER	L.FT	8,700	4.00	34,800
REMOVAL OF CONCRETE SIDEWALK	SQ.FT.	17,200	2.00	34,400
PAVEMENT (PCCP)	SQ.YD.	49,000	50.00	2,450,000
PAVEMENT (AC)	SQ.YD.	6,800	30.00	204,000
CURB & GUTTER	L.FT	24,300	15.00	364,500
STRUCTURE	SQ.FT.	3,300	130.00	429,000
RETAINING WALL	SQ.FT.	19,800	50.00	990,000
SIDEWALK	SQ.FT.	18,900	4.00	75,600
RWCD MAINTENANCE ROAD	SQ.FT.	84,000	1.00	84,000
ROADWAY EXCAVATION	CU.YD.	0	7.00	-
ROADWAY EMBANKMENT (Borrow)	CU.YD.	170,000	8.00	1,360,000
TRAFFIC ITEMS (SIGNING, PAVEMENT MARKING, LIGHTING, FMS)	L.SUM	1	1,086,000.00	1,086,000
TRAFFIC SIGNALS	EACH	2	250,000.00	500,000
DRAINAGE	L.SUM	1	435,000.00	435,000
RELOCATE PARKING LOT	L.SUM	1	250,000.00	250,000
EXTEND BOX CULVERT	L.SUM	1	260,000.00	260,000
			ITEMS TOTAL	<u>8,657,600</u>
Maintenance and Protection of Traffic (5%)	COST		433,000.00	433,000
Dust and Water Palliative (0.75%)	COST		65,000.00	65,000
Quality Control (0.75%)	COST		65,000.00	65,000
Construction Surveying (1.5%)	COST		130,000.00	130,000
Landscaping (5%)	COST		433,000.00	433,000
Erosion Control (0.3%)	COST		26,000.00	26,000
Utility Relocation (5%)	COST		433,000.00	433,000
Mobilization (8% of all construction items)	COST		1,000,000.00	1,000,000
			SUBTOTAL	<u>11,242,600</u>
Unidentified Items (20%)	COST		2,249,000.00	2,249,000
			SUBTOTAL	<u>13,491,600</u>
Construction Engineering (9%)	COST		1,215,000.00	1,215,000
Construction Contingencies (5%)	COST		675,000.00	675,000
Indirect Cost Allocation (10.39%)	COST		1,402,000.00	1,402,000
Engineering Design (8%)	COST		1,080,000.00	1,080,000
Right-of-Way (99,300 SF)	COST		297,900	297,900
			TOTAL PROJECT COST	<u>18,161,500</u>

**ESTIMATE OF PROBABLE COST
SR202L/LINDSAY RD TI - CONSTRUCT HALF TI**

Project No.: 60319830

Project Description: 202L/Lindsay Rd TI

Half Diamond TI

ITEM DESCRIPTION	UNIT	QUANTITY	Unit Price (\$)	Amount (\$)
CLEARING AND GRUBBING	L.SUM	1	50,000.00	50,000
REMOVAL OF PAVEMENT	SQ.YD.	18,800	2.50	47,000
REMOVAL OF CONCRETE CURB & GUTTER	L.FT	5,700	4.00	22,800
REMOVAL OF CONCRETE SIDEWALK	SQ.FT.	17,200	2.00	34,400
PAVEMENT (PCCP)	SQ.YD.	29,600	50.00	1,480,000
PAVEMENT (AC)	SQ.YD.	6,800	30.00	204,000
CURB & GUTTER	L.FT	14,900	15.00	223,500
STRUCTURE	SQ.FT.	3,300	130.00	429,000
RETAINING WALL	SQ.FT.	19,800	50.00	990,000
SIDEWALK	SQ.FT.	19,400	4.00	77,600
RWCD MAINTENANCE ROAD	SQ.FT.	84,000	1.00	84,000
ROADWAY EXCAVATION	CU.YD.	0	7.00	-
ROADWAY EMBANKMENT (Borrow)	CU.YD.	85,000	8.00	680,000
TRAFFIC ITEMS (SIGNING, PAVEMENT MARKING, LIGHTING, FMS)	L.SUM	1	920,000.00	920,000
TRAFFIC SIGNALS	EACH	2	250,000.00	500,000
DRAINAGE	L.SUM	1	276,000.00	276,000
			ITEMS TOTAL	<u>6,018,300</u>
Maintenance and Protection of Traffic (5%)	COST		301,000.00	301,000
Dust and Water Palliative (0.75%)	COST		46,000.00	46,000
Quality Control (0.75%)	COST		46,000.00	46,000
Construction Surveying (1.5%)	COST		91,000.00	91,000
Landscaping (5%)	COST		301,000.00	301,000
Erosion Control (0.3%)	COST		19,000.00	19,000
Utility Relocation (1%)	COST		61,000.00	61,000
Mobilization (8% of all construction items)	COST		670,000.00	670,000
			SUBTOTAL	<u>7,553,300</u>
Unidentified Items (20%)	COST		1,511,000.00	1,511,000
			SUBTOTAL	<u>9,064,300</u>
Construction Engineering (9%)	COST		816,000.00	816,000
Construction Contingencies (5%)	COST		454,000.00	454,000
Indirect Cost Allocation (10.39%)	COST		942,000.00	942,000
Engineering Design (8%)	COST		726,000.00	726,000
Right-of-Way (99,300 SF)	COST		297,900	297,900
			TOTAL PROJECT COST	<u>12,300,200</u>

**ESTIMATE OF PROBABLE COST
SR202L/LINDSAY RD TI - CONSTRUCT WB FRONTAGE RD**

Project No.: 60319830

Project Description: 202L/Lindsay Rd TI

WB Frontage Rd

ITEM DESCRIPTION	UNIT	QUANTITY	Unit Price (\$)	Amount (\$)
CLEARING AND GRUBBING	L.SUM	1	50,000.00	50,000
REMOVAL OF PAVEMENT	SQ.YD.	6,200	2.50	15,500
REMOVAL OF CONCRETE CURB & GUTTER	L.FT	3,100	4.00	12,400
REMOVAL OF CONCRETE SIDEWALK	SQ.FT.	0	2.00	-
PAVEMENT (PCCP)	SQ.YD.	20,100	50.00	1,005,000
CURB & GUTTER	L.FT	10,700	15.00	160,500
STRUCTURE	SQ.FT.	0	130.00	-
RETAINING WALL	SQ.FT.	6,600	50.00	330,000
SIDEWALK	SQ.FT.	0	4.00	-
RWCD MAINTENANCE ROAD	SQ.FT.	0	1.00	-
ROADWAY EXCAVATION	CU.YD.	0	7.00	-
ROADWAY EMBANKMENT (Borrow)	CU.YD.	80,000	8.00	640,000
TRAFFIC ITEMS (SIGNING, PAVEMENT MARKING, LIGHTING, FMS)	L.SUM	1	225,000.00	225,000
TRAFFIC SIGNALS	EACH	0	250,000.00	-
DRAINAGE	L.SUM	1	135,000.00	135,000
			ITEMS TOTAL	<u>2,573,400</u>
Maintenance and Protection of Traffic (5%)	COST		129,000.00	129,000
Dust and Water Palliative (0.75%)	COST		20,000.00	20,000
Quality Control (0.75%)	COST		20,000.00	20,000
Construction Surveying (1.5%)	COST		39,000.00	39,000
Landscaping (5%)	COST		129,000.00	129,000
Erosion Control (0.3%)	COST		8,000.00	8,000
Utility Relocation (1%)	COST		26,000.00	26,000
Mobilization (8% of all construction items)	COST		290,000.00	290,000
			SUBTOTAL	<u>3,234,400</u>
Unidentified Items (20%)	COST		647,000.00	647,000
			SUBTOTAL	<u>3,881,400</u>
Construction Engineering (9%)	COST		350,000.00	350,000
Construction Contingencies (5%)	COST		195,000.00	195,000
Indirect Cost Allocation (10.39%)	COST		404,000.00	404,000
Engineering Design (8%)	COST		311,000.00	311,000
Right-of-Way (0 SF)	COST		-	-
			TOTAL PROJECT COST	<u>5,141,400</u>

**ESTIMATE OF PROBABLE COST
SR202L/LINDSAY RD TI - CONSTRUCT 140TH ST**

Project No.: 60319830

Project Description: 202L/Lindsay Rd TI

140th Street Crossing

ITEM DESCRIPTION	UNIT	QUANTITY	Unit Price (\$)	Amount (\$)
CLEARING AND GRUBBING	L.SUM	1	50,000.00	50,000
REMOVAL OF PAVEMENT	SQ.YD.	0	2.50	-
REMOVAL OF CONCRETE CURB & GUTTER	L.FT	0	4.00	-
REMOVAL OF CONCRETE SIDEWALK	SQ.FT.	0	2.00	-
PAVEMENT (PCCP)	SQ.YD.	3,500	50.00	175,000
CURB & GUTTER	L.FT	1,600	15.00	24,000
STRUCTURE	SQ.FT.	17,500	130.00	2,275,000
RETAINING WALL	SQ.FT.	0	50.00	-
SIDEWALK	SQ.FT.	7,600	4.00	30,400
RWCD MAINTENANCE ROAD	SQ.FT.	0	1.00	-
ROADWAY EXCAVATION	CU.YD.	0	7.00	-
ROADWAY EMBANKMENT (Borrow)	CU.YD.	90,000	8.00	720,000
TRAFFIC ITEMS (SIGNING, PAVEMENT MARKING, LIGHTING, FMS)	L.SUM	1	150,000.00	150,000
TRAFFIC SIGNALS	EACH	1	250,000.00	250,000
DRAINAGE	L.SUM	1	90,000.00	90,000
			ITEMS TOTAL	<u>3,764,400</u>
Maintenance and Protection of Traffic (5%)	COST		189,000.00	189,000
Dust and Water Palliative (0.75%)	COST		29,000.00	29,000
Quality Control (0.75%)	COST		29,000.00	29,000
Construction Surveying (1.5%)	COST		57,000.00	57,000
Landscaping (5%)	COST		189,000.00	189,000
Erosion Control (0.3%)	COST		12,000.00	12,000
Utility Relocation (1%)	COST		38,000.00	38,000
Mobilization (8% of all construction items)	COST		420,000.00	420,000
			SUBTOTAL	<u>4,727,400</u>
Unidentified Items (20%)	COST		946,000.00	946,000
			SUBTOTAL	<u>5,673,400</u>
Construction Engineering (9%)	COST		511,000.00	511,000
Construction Contingencies (5%)	COST		284,000.00	284,000
Indirect Cost Allocation (10.39%)	COST		590,000.00	590,000
Engineering Design (8%)	COST		454,000.00	454,000
Right-of-Way (0 SF)	COST		-	-
			TOTAL PROJECT COST	<u>7,512,400</u>

Appendix D



Privately Funded Interchange Development Process Requirements Handbook

A Uniform Protocol for Private Entities

December 2007



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INTRODUCTION

Dear Applicant:

The Arizona Department of Transportation (ADOT) has established this handbook for the private development community as a uniform protocol for requesting new traffic interchanges or modifications to existing interchanges. The policy requires that private entities proposing the change adequately assess and mitigate impacts of their development on the state highway transportation system. Applicants shall be required to conduct the appropriate level of technical and environmental analysis/studies, public outreach, community involvement, and government relations as determined by ADOT.

The objective of this policy is to manage access, ensure responsible long-term planning, ensure optimal operations given future traffic conditions, and reduce the possibility of future failure and required retrofit, as well as associated expenditures of ADOT-owned transportation facilities.

We look forward to building partnerships, fostering multi-agency collaborations, and strengthening relationships between ADOT, developers, and the community. This process is an example of agency-level implementation of Governor Napolitano's Growth and Infrastructure Initiative, requiring developers and other relevant entities to evaluate impacts of development on the state system early in the planning process.

If you have not yet contacted the District Engineer relevant to your request (see map on next page), that should be your first step.

This handbook provides the instructions you will need to complete the process. The requirements, application, and reports are housed online for your convenience at:

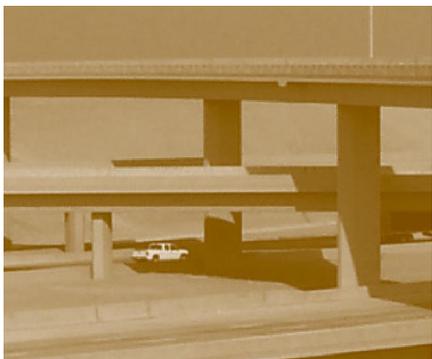
www.azdot.gov/Highways/Privately_Funded_Tl.asp

We look forward to partnering with you in building a greater Arizona.

Sincerely,

Sam Elters
State Engineer
Arizona Department of Transportation

**ADOT District Map and
Contact Information**



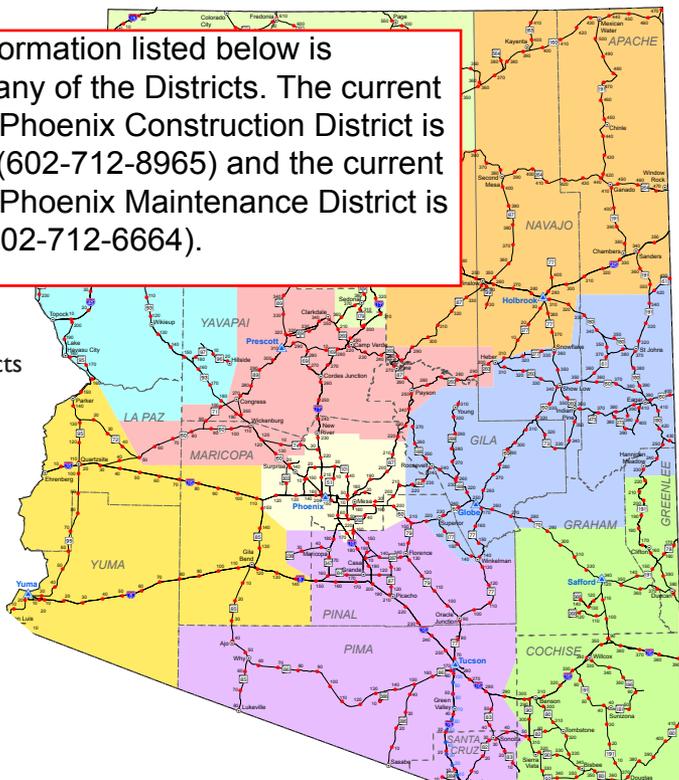
ADOT DISTRICT MAP

An applicant's first point of contact should be at the District level. Find the area of your proposed project on the map below. The District contact will initiate the Privately Funded Interchange Development Process with the applicant.

The contact information listed below is outdated for many of the Districts. The current contact for the Phoenix Construction District is Madhu Reddy (602-712-8965) and the current contact for the Phoenix Maintenance District is Jim Windsor (602-712-6664).

Engineering Districts

- FLAGSTAFF
- HOLBROOK
- KINGMAN
- PRESCOTT
- GLOBE
- SAFFORD
- TUCSON
- YUMA
- PHOENIX



<http://tpd.azdot.gov/gis/maps>

Flagstaff District Engineer

John Harper
jharper@azdot.gov
(928) 774-1491

Globe District Engineer

Jerry Barnes
jbarnes@azdot.gov
(928) 402-5612

Holbrook District Engineer

Lynn Johnson
lynnjohnson@azdot.gov
(928) 524-5404

Kingman District Engineer

Mike Kondelis
mkondelis@azdot.gov
(928) 681-6010

Phoenix Maintenance District

Tim Wolfe
twolfe@azdot.gov
(602) 712-6664

Phoenix Construction District

Rob Samour
rsamour@azdot.gov
(602) 712-8965

Prescott District Engineer

Dallas Hammit
dhammit@azdot.gov
(928) 777-5862

Safford District Engineer

William Harmon
bharmon@azdot.gov
(928) 432-4919

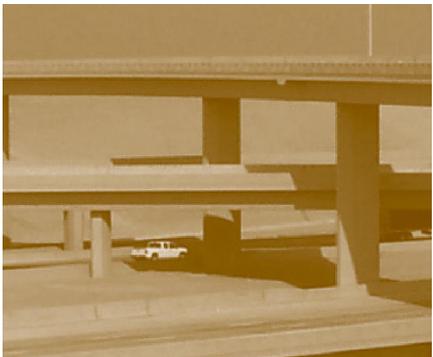
Tucson District Engineer

Greg Gentsch
ggentsch@azdot.gov
(520) 388-4216

Yuma District Engineer

Paul Patane
ppatane@azdot.gov
(928) 317-2100

**Privately Funded
Traffic Interchange
Development Process**



PRIVATELY FUNDED INTERCHANGE DEVELOPMENT PROCESS

Background

ADOT recognizes that state highways are important to meeting the mobility needs of the public and that it is important to the quality of life and economic health of the State of Arizona for the state highway system to provide safe and efficient interregional and interstate movement of people and goods. To that end, ADOT must manage the location, design, operations, and maintenance of interchanges on the state highway system.

This handbook provides the instructions you will need to complete the Privately Funded Interchange Development Process. The requirements, application, and reports are housed online for your convenience at:

www.azdot.gov/Highways/Privately_Funded_TI.asp

Policy

It is ADOT's policy that all requests for new interchanges and major improvements to existing interchanges on the state highway system be reviewed and evaluated in a fair and consistent manner, and that sufficient information is available for the Department to make an informed decision. ADOT may deny any request that may cause a negative impact on the state and/or interstate highway system or regional traffic.

Since each request for a new interchange or interchange modification on transportation facilities owned by ADOT has its own unique circumstances, ADOT will take into account these circumstances in judging the relative merits of each request. To that end, ADOT recognizes that there must be flexibility to ensure a level of analysis appropriate to the circumstances surrounding each proposal.

A private entity wishing to construct new interchanges or make major improvements to existing interchanges on the interstate or state highway system shall make its formal request by issuing a **“Letter of Intent”** to the Director of ADOT. Upon receipt of this letter, the review process outlined will commence. ADOT will assign a Project Manager to oversee all activities associated with each request. All information shall flow through that Project Manager.

Connections to the State Highway System

Interchange connections to the state highway system are intended to improve the operations and safety of the system, serve regional travel purposes, and provide access to regional destinations. Therefore, interchange connections from state highways must be to regionally significant roadways or regionally significant publicly owned facilities, or result in a significant improvement in the operations and safety of the state highway system.

A regionally significant roadway is a roadway that is classified as a principal arterial or higher classification in the most recently adopted Metropolitan Planning Organization (MPO) transportation plan in urban areas. Or, the roadway shall have been identified as regionally significant within an adopted Regional Transportation Plan, National Environmental Policy Act (NEPA) environmental study, feasibility study, corridor plan, or access management plan for which ADOT staff has participated and approved.

The proposed improvements must be compatible with the approved access management plan for the affected corridor and provide an acceptable level of service for the design year in accordance with *ADOT Roadway Design Guidelines*. The proposed improvements consist of the following two categories:

Type 1 Improvements: Proposals for new interchanges and modifications to existing interchanges on the state highway system with a functional classification of Interstate or Freeway.

Type 2 Improvements: Proposals for new interchanges not on the interstate system or freeway system and major modifications or reconfigurations to existing interchanges.

Project Development and Report Requirements

The project development, design, and public/agency involvement process will require the following reports to be submitted for approval prior to design of improvements:

1. Design Concept Report
www.azdot.gov/Highways/RdwyEng/RoadwayPredesign/
2. Traffic Report/Impact Analysis
www.azdot.gov/highways/traffic/PGP.asp
3. Environmental Documentation and Report
www.azdot.gov/highways/EEG/EEG_common/documents/privately_funded_projects.asp
4. Geotechnical Report
www.azdot.gov/highways/EEG/EEG_common/documents/privately_funded_projects.asp
5. Bridge Foundation Report
www.azdot.gov/Highways/bridge/Guidelines/index.asp
6. Drainage Report
www.azdot.gov/Highways/RdwyEng/DrainageDesign/ftp.asp
7. Bridge Selection Report
www.azdot.gov/Highways/bridge/Guidelines/index.asp
8. Change of Access Report (if applicable, see FHWA DG25)
9. Proposed Development/Design/Construction Schedules
10. Public Involvement Plan/Report
www.azdot.gov/CCPartnerships/PrivateInterchanges/index.asp
11. Right-of-Way Requirements
www.azdot.gov/highways/row/PrvFundTI.asp
12. Utility and Railroad Requirements
www.azdot.gov/highways/utilities/index.asp

All reports shall conform to the respective ADOT technical areas' report requirements. The requesting party is responsible for obtaining and conforming to the respective technical manuals.

Pre-Application Meeting

The designated ADOT Project Manager will arrange and host a pre-application project scoping meeting, or a series of pre-application meetings, with the applicant, appropriate ADOT representatives, and relevant local, state, or federal agencies to determine the scope and anticipated process and schedule for any proposed interchange project.

ADOT staff from the following Sections should participate in the pre-application meeting with the applicant: District, Statewide Project Management and/or Valley Project Management Group, Traffic Engineering Group, Transportation Planning Division, Environmental Planning, Right of Way, Roadway Engineering Group, Bridge Group, Materials Group, Utilities and Railroad, Contracts and Specifications, Communication and Community Partnerships, MPO staff, Federal Highway Administration (FHWA), and other parties as deemed appropriate by the District Engineer.

FHWA shall be invited to participate when an access request affects the interstate system.

The purpose of the pre-application meeting(s) is to:

- Determine whether the proposed interchange is consistent with ADOT requirements regarding connections to the state highway system and discuss the requirements of all ADOT Sections with regard to the applicant's proposal.
- Evaluate the general feasibility of a proposed project, including early identification of any anticipated operational, environmental, air quality conformity, access management, public concern, and other technical and/or controversial issues. ADOT staff will determine if any recently adopted and/or approved corridor plans, access control plans, or other related studies which ADOT staff deems relevant to the potential application can contribute to the analysis required for the application.
- Review the proposed project for consistency with the Regional Transportation Plan and the applicable corridor vision, goals and strategies in the Statewide Long Range Transportation Plan.
- Identify the improvement type (Improvement Type 1 or 2), and the appropriate scope of studies required. The scope of studies will be determined in accordance with the Project Development Process Manual.
- Discuss right-of-way requirements, including survey and right-of-way plan preparation, disposition of the ownership of land for the fee interest to be donated, and the timing of the submittal to the Arizona State Transportation Board for the final resolution, approval, and acceptance into the state highway system.

- Discuss an initial determination of the level of environmental analysis required. ADOT staff will provide an initial assessment of whether the proposal should be classified as a Categorical Exclusion, Environmental Assessment (EA), or Environmental Impact Statement in accordance with NEPA, (if the project has a federal nexus), or an Environmental Determination. A state-level EA may be required for activities that do not have a federal connection. In addition, any other permits that may be required will be discussed. This initial assessment is subject to revision and modification if additional environmental issues arise at a later stage.
- Discuss public and agency involvement requirements. The applicant shall be required to conduct and document an agency and public involvement program appropriate to the type of project proposed. At the initial meeting, ADOT staff will review the public and agency involvement requirements with the applicant.
- Identify access permitting requirements. ADOT staff will outline access permitting procedures and circumstances when modifications to existing access permits are necessary.
- Discuss the cost of application processing. The applicant is responsible for all costs associated with the preparation and processing of the application. An initial estimate of ADOT costs associated with the application review and its processing will be prepared by ADOT and provided to the applicant following this step in the process.
- Discuss FHWA consultation and involvement. The FHWA representative shall be consulted to determine if the proposal requires federal involvement and if so, the necessary level of detail and the most appropriate time to submit a formal request for a determination of engineering and operations acceptability.

Joint Project Agreements Requirements

The private entity is responsible for all costs associated with the evaluation of proposals for new interchanges or modifications to the existing interchanges, development, and construction administration. There will be multiple Joint Project Agreements (JPAs) required to cover development, design, construction, right-of-way, and maintenance as applicable.

The requirements, application, and reports are housed online for your convenience at: www.azdot.gov/Highways/Private_Funded_TI.asp

ADOT will develop an initial JPA with the applicant and any other relevant agencies, addressing responsibility for the following:

1. Anticipated improvement type - Type 1, 2
2. Anticipated administrative and application costs
3. Anticipated level of pre-design documents

4. Anticipated schedule
5. Environmental analysis and documentation
6. Consistency with Regional and Statewide Transportation Plans
7. Access permitting requirements
8. Other necessary issues identified in the pre-application scoping meeting
9. Funding transfer to ADOT

All ADOT Sections listed under “Pre-Application Meeting” shall participate in the draft/review of the applicable JPAs to ensure that all requirements are stated.

Subsequent Joint Project Agreements

Additional JPAs shall address a funding plan that identifies all sources of funding necessary to construct the proposed improvement, including the costs and responsibility for design, right-of-way requirements, construction, construction administration, quality control, environmental mitigation, operations, and long-term maintenance. This funding plan must clearly identify the costs associated with each of the elements identified below, which are the responsibility of the applicant unless otherwise agreed upon with ADOT. The applicant is responsible for all costs associated with development, design, construction, and construction administration including departmental costs for plan reviews, right-of-way administration, and construction management.

ADOT will develop JPAs with the applicant and any other relevant agencies that address but are not limited to the following:

1. Designation of ownership, maintenance, and operation of all physical features and related facilities including but not limited to the following:
 - a. The interchange structure including associated signing, lighting, culverts, etc.
 - b. Right-of-way and access control limits associated with the interchange
 - c. Ramps associated with the interchange
 - d. Other related facilities such as signals, traffic control devices, pedestrian facilities, park-n-ride facilities, environmental mitigation, landscaping, enhancements, etc.
2. The costs associated with the development and construction of the interchange to standards prescribed by ADOT, including but not limited to the following categories:
 - a. Completion of all environmental studies and permits
 - b. Costs for any environmental mitigation (including long-term monitoring) identified in the environmental document and applicable permits, and public/agency involvement throughout design and construction
 - c. Access permit fees

- d. Preliminary design
 - e. Final design
 - f. Purchase of any required right-of-way, including purchase or dedication of control of access rights and any required easements
 - g. Utility relocation and railroad mitigation costs
 - h. Actual construction costs
 - i. Costs for all landscaping including mitigation measures identified in the environmental document
 - j. Costs for lighting
 - k. Traffic signals, signing, and pavement markings
 - l. Temporary traffic control
 - m. Additional improvements to the corridor/future capacity improvements
 - n. ADOT staff costs for design reviews, construction management/administration construction inspection and monitoring, quality control, and material acceptance testing
3. Maintenance of Special Features - Enhancements, special design components and special aesthetics not in accordance with ADOT standards shall require maintenance by the developer and/or local government. The maintenance responsibilities of the liable entity must be outlined in a joint project agreement. Examples include but are not limited to, decorative fencing, architectural light poles and fixtures, multiple colored painting of structures, and landscaping densities.

Bidding Requirements

All projects shall be bid in accordance with the Arizona Revised Statutes 28-6923. Traditional Design, Bid, Build or Alternative Contracting Procedures may be implemented as directed by the Department. Projects that receive joint funding shall be advertised, awarded, and administered in accordance with Department policy, procedures, and applicable State laws.

Arizona Revised Statute 28-6923 requires that a private entity:

1. Before advertising for bids, submits to ADOT a bond that is issued by a surety insurer authorized to do business in the State of Arizona and that is in an amount equal to 125% of the anticipated construction cost of the project, plus construction management and contractor costs.
2. Solicits sealed bids from at least four contractors who are pre-qualified by ADOT to perform a contract of the anticipated dollar amount for construction.
3. Awards the contract to the best bidder taking into account price and other criteria as provided in the bid documents.

4. Obtains bonds from the selected contractor that provide the same coverage as performance and payment bonds issued under title 34, chapter 2, article 2.
5. Uses ADOT construction standards.
6. Pays all costs of ADOT reviews of the contract and inspections of the project.

For the purposes of this section, a project is funded completely with private monies if all of the following apply:

1. The contractor is paid entirely with monies from private entities.
2. The private entities hire a competent construction manager and contractor who do not have an affiliation with each other.
3. The private entities either pay all costs of design or reimburse ADOT for all costs of design.

**ADOT Contract Information
and Requirements
by Section**



COMMUNICATION AND COMMUNITY PARTNERSHIPS (CCP) REQUIREMENTS

Contact Information:

Matt Burdick, Division Director
mburdick@azdot.gov
(602) 712-7049

The CCP requirements for Privately Funded Interchange Development are located online at:

www.azdot.gov/CCPartnerships/PrivateInterchanges/index.asp

ADOT requires a public involvement process to be conducted as part of the local conceptual planning project submittal, general plan amendment, or initial development approval process that is required by a city, town, or county. Documentation of this public involvement process will be required to occur prior to ADOT approving a Privately Funded Traffic Interchange. CCP will provide further direction and guidance regarding the public involvement process, requirements, and personnel contacts at the initial pre-application meeting. Some of the requirements for the public involvement process are outlined below.

Developer Requirements

The developer is required to provide information about the project by first class letter or postcard to individuals and agencies of potential impact.

Project notification shall be provided to the following parties:

- Property owners and homeowners associations (HOAs) within a certain range of miles (to be determined at the pre-application meeting)
- Adjacent property owners/tenants/HOAs
- School districts
- Public agencies (Flood Control District, municipalities, utilities, etc.)

Project notification shall include the following information:

- Project request and description
- Location and project specifics
- Ownership
- Site plan
- City and applicant contact names and phone numbers
- Scheduled public meeting(s) (time(s), date(s), and location(s))

The developer is required to post a “Project Under Consideration” sign on the site 10 calendar days prior to the public meeting. The following information should be included on the sign:

- Project request and description
- Location and project specifics
- Ownership

- Public meeting time(s), date(s), and location(s)
- City and applicant contact names and phone numbers

Public Meetings

The developer is required to hold at least one public meeting related to the project. The developer must provide meeting date, time, and location to the ADOT Project Manager **at least** 14 calendar days prior to the meeting. The developer should coordinate the public meeting with the city/town/county in which the proposed interchange is located. If the city/town/county has specific public meeting requirements or guidelines they should supplement these requirements.

Public Involvement Program Report

The developer is required to submit a Public Involvement Program Report to the ADOT Project Manager with the application. Public involvement program templates to be completed are located at:

www.azdot.gov/CCPartnerships/PrivateInterchanges/index.asp

Document your project notification efforts as follows:

- Provide copy of names, phone numbers and addresses of contacted parties (e.g., neighbors/property owners, school district representatives, HOAs).
- Provide the dates contacted, and the number of times contacted.
- Indicate how they were contacted (e.g., letter, phone call). If certified mail was used, provide receipts of delivery.
- Provide originals of all comments, letters, and correspondence received.
- Provide copies of letters or other means used to contact neighbors, school district, and HOAs.
- Provide a map showing where notified neighbors are located.
- Provide affidavit(s) of mailing(s).

Verify the “Project Under Consideration” sign posting as follows:

- Provide affidavit of posting.
- Include pictures of the sign that are date and time stamped.

Document the public meeting(s) as follows:

- List dates, times, and locations of public meeting(s) held.
- List dates, times, and locations of any follow-up with interested parties.
- Provide the sign-in sheets, list of people who attended the meeting(s), comment sheets, and written summary of the comments, issues, and concerns provided at the public meeting(s).
- List the method by which the applicant has addressed, or intends to address, the issues, concerns, and problems identified during the process.



STATEWIDE/VALLEY PROJECT MANAGEMENT REQUIREMENTS

Contact Information:

Statewide Project Management
Vincent Li, Assistant State Engineer
vli@azdot.gov
(602) 712-7545

Valley Project Management
Larry Langer, Assistant State Engineer
llanger@azdot.gov
(602) 712-7559

ADOT has two departments responsible for quality project management services and management support during project design and development, including determining and maintaining project scopes, schedules, and budgets from scoping through construction and into maintenance; team building with ADOT and non-ADOT stakeholders; developing and administering consultant contracts; and sustaining communication throughout all project phases with all interested parties.

These departments will provide further direction and guidance regarding the the process, requirements, and personnel contacts at the initial pre-application meeting.

Statewide Project Magement - provides the services in support of the ADOT Construction Program and Local Governments' Federal-Aid Transportation Programs on projects outside Maricopa County.

Statewide Project Management requirements for Privately Funded Interchange Development are located online at:

www.azdot.gov/highways/SWProjMgmt/index.asp

Valley Project Management - provides support for the planning and programming of the Maricopa Association of Governments (MAG) Regional Freeway System and other Phoenix area projects.

Valley Project Management requirements for Privately Funded Interchange Development are located online at:

www.azdot.gov/Highways/VPM/Index.asp

RIGHT OF WAY GROUP REQUIREMENTS

Contact Information:

Paula Gibson
Deputy Chief Right of Way Agent
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 612E
Phoenix, Arizona 85007-3217
pgibson@azdot.gov
Tel: 602-712-8758, Fax: 602-712-3257

The Right of Way Group requirements for Privately Funded Interchange Development are located online at:

www.azdot.gov/highways/row/PrvFundTI.asp

The purpose of the Right of Way Group is to function as the acquiring agency of ADOT in acquiring all real property and real property rights required for the construction and maintenance of all federal and state highways, and other highway-related purposes.

The ADOT Right of Way Group will provide further direction and guidance regarding right-of-way requirements and personnel contacts at the initial pre-application meeting. All right-of-way tasks and deliverable products associated with this project will be developed according to the instructions and policies contained herein, and, according to the standards and policies governing the ADOT Right of Way Group.

The following provides background information on items that are to be submitted to the ADOT Right of Way Group:

- The Developer and all other owner(s) shall waive the right to receive just compensation and donate the real property for the referenced project in fee title, or easement, depending on design requirements with regards only to drainage and slopes as approved by the ADOT District, to the State of Arizona, by and through its Department of Transportation (“Right of Way Property”) and the Developer or other owner(s) will execute Warranty Deeds (“Deeds”) or Drainage/Slope Easements (“Easements”) for the Right of Way Property to ADOT.
- The Developer will deliver the Deeds and/or Easements to the Right of Way Group for review, along with the Title Insurance Policy reflecting the Developer and all other owner(s), as the party in possession of the real property being donated, including copies of all documents referenced in said Title Insurance Policy.

- The property must be free and clear of all liens, encumbrances and judgments, including real estate taxes. Following construction, ADOT District approval on all constructed transportation facilities and the Right of Way Group's approval of all deeds and/or easements, including plans and surveys, ADOT will submit a Resolution of Establishment to the State Transportation Board for official action. Upon approval (by Resolution) from the State Transportation Board, the State will accept ownership, jurisdiction, and maintenance of the right-of-way and record all deeds, drainage/slope easements and said Resolution of Establishment simultaneously with the appropriate county recorder.
- The Developer shall prepare all necessary surveys, plans and documents required by the ADOT Right of Way Group. These can include the following: right-of-way surveys, right-of-way plans, existing right-of-way exhibits, supplemental surveys, legal descriptions, right-of-way staking plans and right-of-way monumentation surveys.
- All right-of-way surveys, right-of-way plans, and legal descriptions will be developed according to current ADOT Right of Way Group standards, policies and procedures. The Developer will deliver all the above documents to the Right of Way Group, at specified development stages, to ensure conformance with said standards, policies and procedures. Prior to commencement of any work in the preparation of any of the items listed herein, the Developer, or its Agents, will meet with the Right of Way Group to receive more detailed items and instructions regarding said standards, policies and procedures.

Until the above items are met and ADOT is satisfied with the requirements provided, all newly constructed transportation facilities will not be accepted nor established into the state highway system.



ENVIRONMENTAL PLANNING GROUP (EPG) REQUIREMENTS

Contact Information:

Tammy Flaitz, Program Manager
tflaitz@azdot.gov
(602) 712-8638

The EPG requirements for Privately Funded Interchange Development are located online at:

www.azdot.gov/highways/EEG/EEG_common/documents/privately_funded_projects.asp

ADOT's Environmental Planning Group (EPG) provides environmental services for transportation activities through compliance with regulatory requirements, providing the highest level of professional technical support and education to our agency and customers, while building cooperative relationships with other government agencies and the public.

EPG will provide further direction and guidance regarding its process, requirements, and personnel contacts at the initial pre-application meeting. The Project Data Sheet is a form completed by the project applicant and reviewed by the appropriate EPG staff members (planner and technical specialists) early in the process in order to reach concurrence regarding the level of documentation required for the environmental analysis.

EPG has the following informational links on their webpage:

Introduction - EPG introduction and NEPA overview

Guidance for Conducting Environmental Compliance Analysis

Categorical Exclusions

Environmental Assessments (EAs)

Biology

Section 404-401 Procedures Applications and Permits

Section 4(f)

Noise Policy

Air Quality

Hazardous Materials

Environmental Justice

Cultural Resources

Public Meetings Guidance

Contractor-Furnished Material Sources

Geotechnical Clearance Process

Consultant Information - training information for outside consultants who are developing the environmental documents

ENGINEERING TECHNICAL GROUP REQUIREMENTS

Contact Information:

John Carr, Engineering Technical Group Manager
jcarr@azdot.gov
(602) 712-7275

Barry Crockett, Section Manager, Contracts and Specifications
bcrockett@azdot.gov
(602) 712-7221

The Engineering Technical Group will provide further direction and guidance regarding its process, requirements, and personnel contacts at the initial pre-application meeting. The Engineering Technical Group houses several Sections key to the ADOT Project Development Process.

Engineering Survey - sets standards for engineering surveys and photogrammetry and mapping services and documents. Any survey documents produced for the state highway system needs to follow their standards and final products submitted to them.

Contact: Chong-Tai Chyan, (602) 712-7944

Computer Aided Design and Drafting (CADD) Management and Support - serves as a central contact for the CADD Standards used in the development of CADD drawings. The CADD Standards are important because final drawings need to be submitted to ADOT for archiving and able to be retrieved from archiving for use by other designers in the future in formats consistent with ADOT's CADD software programs.

Contact: Fred Daniels, (602)712-7169

Program and Project Management Section (PPMS) - responsible for maintaining all project schedules for ADOT construction projects whether in scoping, design, or construction phase. They publish monthly project management reports, available on the ADOT internet site, to keep stakeholders apprised of the schedule status of all ADOT projects. Private developers must submit all schedules to PPMS through the ADOT Project Manager, in accordance with ADOT guidelines, and provide monthly updates.

Contact: Hari Khanna, (602) 712-7334

Engineering Consultants Section (ECS) - In the event ADOT contracts with a designer to do design work on a privately funded project, ECS would likely be involved in guiding them through their process.

Contacts: Vivien Lattibeaudiere, (602) 712-7808
Susan Tellez, (602) 712-7220

UTILITY AND RAILROAD ENGINEERING SECTION REQUIREMENTS

Contact Information:

Bruce Vana, Utility and Railroad Section Manager
bvana@azdot.gov
(602) 712-8681

Robert Travis, State Railroad Liaison
rtravis@azdot.gov
(602) 712-6193

Utility and Railroad Engineering Section is located online at:

www.azdot.gov/highways/utilities/index.asp

The Utility and Railroad Engineering Section will provide further direction and guidance regarding its process, requirements, and personnel contacts at the initial pre-application meeting. Utility coordination and design aspects of a highway construction project are covered within the two following documents, which shall be followed by any designer attempting to design a state highway or transportation-related facility:

“Utility Coordination Guide For Design Consultants” - is intended primarily to provide guidance for the design consultants responsible for utility coordination for highway projects involving ADOT facilities. Although it is not possible to cover all situations, an effort has been made to make the manual detailed enough to provide guidance for those not familiar with the utility coordination process.

“Guide For Accommodating Utilities on Highway Rights of Way” - is intended to consolidate the policies and procedures adopted by ADOT for the accommodation of utilities on highway rights-of-way. All utility installations above or below ground, within state right-of-way, are regulated by ADOT through the establishment and enforcement of these policies contained within the manual.

For projects that involve a new highway or roadway crossing a railroad or widening of an existing railroad crossing, the design consultant should be made aware of a separate series of requirements by Burlington Northern Santa Fe and Union Pacific Railroad. For projects involving a new rail/highway grade separation structure the railroad will need to formally approve the horizontal and vertical distances from the track to the structure found in the Bridge Selection Report including the overall span length of the structure. Once approved these values cannot diminish.

If widening of an at-grade crossing is anticipated, a diagnostic meeting must be held involving members from the railroad, the road authority and the Corporation Commission to discuss and agree upon crossing safety features required by the project. At the railroad's discretion they will contract with either the developer or the road authority to perform any railroad-related work for the project. For any additional easement area required from the railroad, the railroad will contract with the road authority only.

If the town or city intends to turn back the completed facilities to ADOT they will acquire the necessary easement from the railroad which will later be transferred to ADOT. The process is similar for the many short-haul railroads in the state. Completion of a crossing agreement, to affect railroad work or additional crossing easement area, with the railroad must occur before access to railroad right-of-way will be granted to affect construction.

TRAFFIC ENGINEERING GROUP REQUIREMENTS

Contact Information:

Mike Manthey, State Traffic Engineer
mmanthey@azdot.gov
(602) 712-8888

ADOT's Traffic Engineering Standards, which apply to Privately Funded Interchange Development, are located online at:

www.azdot.gov/highways/traffic/Standards.asp

The Traffic Engineering Group is responsible for formulating and administering a statewide traffic engineering program to provide for the safe and efficient operation of traffic. The Traffic Engineering Design Group is divided into six teams: the Highway Enhancements for Safety (HES) Team, four Engineering Design Teams, and the Traffic Operations Section. These teams will provide further direction and guidance regarding their process, requirements, and personnel contacts at the initial pre-application meeting.

The HES Team investigates and recommends improvements and countermeasures for traffic-related problems on the state highways including the following:

- Identifies and recommends countermeasures to reduce accidents frequency and/or severity at locations with perceived accident problems
- Provides expertise in traffic problem resolution
- Serves as the focal point of statewide Safety Management System

The Engineering Design Teams in Traffic Design produce the following products:

- Work zone traffic control plans, specifications, and estimates for construction projects statewide
- Pavement marking and signing plans, specifications, and estimates for construction projects statewide
- Project management and design leadership for freeway signing update projects statewide
- Signing work orders for Interstate highways across Arizona
- Development of traffic engineering standard drawings, guidelines, and specifications for use by ADOT and other agencies
- Speed zoning, traffic signal, and other safety studies

Traffic Operations Section provides a variety of traffic operations services, including:

- Provides technical expertise and maintains electrical equipment on highways and freeways
- Develops and administers the design and implementation of new traffic signal coordination systems, and partner with local agencies in the planning, development, and implementation of signal progression systems
- Establishes guidelines for signal system prioritization, and disseminate current technology on traffic signal operations and coordination to the regional traffic offices
- Pays electrical costs for the operation of signals, lighting and related equipment
- Partners with the Construction Group, other agencies and contractors by providing a timely source of quality traffic products and communications equipment statewide
- Responsible for fabricating all freeway and highway signs
- Maintains all roadway striping and signing for all freeways as well as support to the four Regional Traffic groups on all highways
- Responsible for the research and development of traffic control device specifications and provides the technical expertise to develop and evaluate contracts for these devices
- Responds to emergency situations statewide on Section-related activities as well as responds to tort liability situations

They operate in accordance with the USDOT Manual on Uniform Traffic Control Devices (MUTCD), the Arizona Revised Statutes (A.R.S.), the National Electrical Manufacturers Association (NEMA), the International Municipal Signal Association (IMSA) and ADOT's own policies, guidelines and procedures (PGP).

The Traffic Operations Section performs duties as described at:

www.dot.state.az.us/Highways/Traffic/9660.asp

ROADWAY ENGINEERING GROUP REQUIREMENTS

Contact Information:

Mary Viparina, Assistant State Engineer
mviparina@azdot.gov
(602) 712-4282

The Roadway Engineering requirements for Privately Funded Interchange Development are located online at:

www.azdot.gov/Highways/RdwyEng/index.asp

As an integral part of Arizona's Intermodal Transportation Division, the Roadway Engineering Group is an organization consisting of four functional Sections: Roadway Predesign, Drainage Design, Roadside Development, and Roadway Design. The Roadway Engineering Group will provide further direction and guidance regarding its process, requirements, and personnel contacts at the initial pre-application meeting.

- **Roadway Predesign** provides guidance on project scoping documents.
- **Drainage** provides guidance and direction to consultants and outside entities involved with drainage design activities for ADOT, to enable compliance with applicable policy, criteria, and procedures.
- **Roadside Development** provides landscape architectural and environmental technical design direction and expertise for ADOT projects statewide, including the development of plans and specifications and review of consultant plans involving: aesthetic enhancements and design, environmental mitigation and ecological restoration, stormwater quality and erosion control, seeding and revegetation, native plant salvage and replanting, and landscape and irrigation design.
- **Roadway Design** provides reviews on plans specifications, and estimates for highway construction contracts' project scoping documents.

MATERIALS GROUP PAVEMENT DESIGN SECTION REQUIREMENTS

Contact Information:

Mr. Paul Burch, P.E.
Pavement Design Section Engineer
Arizona Department of Transportation – Materials Group
1221 N. 21st Avenue, Phoenix, Arizona 85009
Tel: (602) 712-8085, Fax: (602) 712-8138

The Materials Preliminary Engineering and Design Manual is available for purchase from the ADOT Engineering Records Section. Additional information regarding Engineering Records can be found on their webpage:

www.azdot.gov/Inside_ADOT/Misc/Engineering_Records.asp

Pavement design activities required for Privately Funded Traffic Interchanges shall be performed in accordance with the ADOT Materials Preliminary Engineering and Design Manual. Specifically, the pavement design consultant is directed to chapters Two (Pavement Design), Four (Pavement Rehabilitation), and Five (Consultant and Local Government Projects).

It is imperative that the ADOT Materials Pavement Design Section be advised as early as practical that development has been initiated on a Privately Funded Traffic Interchange servicing the state highway system. The developer or its designated consultant shall ensure that the ADOT Pavement Design Section Engineer is provided with copies of any corridor study, project feasibility study, design concept report, or project assessment associated with or within the limits of the proposed Privately Funded Traffic Interchange Project.

Upon the developer's pavement design consultant making contact with the ADOT Pavement Design Section Engineer, an ADOT pavement designer will be assigned to the project to perform appropriate review of the pavement design consultant's work products.

The following items are to be submitted to the ADOT Pavement Design Section for review, comment, and ultimate approval:

1. Soil information, including soils classifications, soil profile for new alignments, and log of core samples
2. Geotechnical Report approved by ADOT Geotechnical Design Section
3. Pavement Design Summary

4. Initial Pavement Design Report
5. Preliminary pavement structure cost estimate
6. Final Pavement Design Report

The final version of the Geotechnical Report, Pavement Design Summary and Pavement Design Report must be signed and sealed by an Arizona Registered Engineer.

For projects proposed within the Phoenix and Tucson metropolitan areas, the pavement design consultant is directed to review the attached Pavement Guidelines for Urban Freeways, in addition to following the requirements of the Materials Preliminary Engineering and Design Manual.

The pavement design consultant shall allow sufficient time for appropriate review of the design reports in accordance with the below time table:

- Soils information, Geotechnical Report - 10 working days
- Pavement Design Summary and Initial Pavement Design Report - 15 working days
- Final Pavement Design Report - 10 working days

BRIDGE GROUP REQUIREMENTS

Contact Information:

Jean Nehme, Ph.D., P.E. State Bridge Engineer
jnehme@azdot.gov
(602) 712-7481

**Bridge Design Guidelines for Privately Funded Interchange
Development are located online at:**

www.azdot.gov/Highways/bridge/Guidelines/index.asp

The Bridge Group is responsible for the effective use of modern technology and resources for furnishing bridge design, bridge construction assistance, and bridge management necessary to provide and maintain safe and functional bridges and drainage facilities on Arizona highways. The Bridge Group will provide further direction and guidance regarding its process, requirements, and personnel contacts at the initial pre-application meeting.

The Bridge Group will provide reviews for each design submittal to ensure the appropriate use of the Standard Drawings including such design features as Concrete Box Culverts (CBCs), retaining walls, pipe headwalls, and tubular sign supports. Items involving special design shall be given oversight review. Such items might include light poles, sign supports, tubular signs, Freeway Management System (FMS) signs, retaining walls, CBCs, miscellaneous structural items, sound walls and Barrier Summary Sheets. The Bridge Group will also make sure there is consistency between the bridge plans, and the civil and traffic plans.

