CHAPTER 5 – PARALLEL PARKWAY CORRIDOR IMPROVEMENTS

Another key area within the Village West study area is the Parallel Parkway corridor. This chapter focuses on the segment of Parallel Parkway between 106th Street on the west to 98th Street on the east. Parallel Parkway, west of I-435, provides direct access to the Village West / Legends commercial and entertainment district from the north. East of I-435, the Schlittlerbahn Vacation Resort and Waterpark also have direct access to Parallel Parkway.

Traffic counts were taken at key locations within the study area during both the weekday PM peak hour and the Saturday peak hour. When compared to the existing Saturday peak hour, the existing weekday PM peak hour had larger overall traffic volumes system wide. All analyses for this chapter were completed using weekday PM peak hour traffic flows.

5.1 EXISTING CONDITIONS

Analyses for existing conditions were completed using the existing weekday PM peak hour traffic flows with the current geometric configurations and traffic control conditions on Parallel Parkway near the I-435 interchange to determine the existing operational levels of service and improvement needs within this segment of the corridor.

The existing weekday PM peak hour design volumes and Saturday peak hour design volumes at 98th Street are shown on **Exhibit 5.1.1** and the existing lanes and level of service (LOS) for the weekday PM peak hour are shown on **Exhibit 5.1.2**. It should be noted the levels of service for the Parallel Parkway weaves and merges / diverges are estimates only due to the limitations of the Highway Capacity Manual methodology as applied to low speed arterial facilities. The existing weekday PM peak hour level of service, by road segment, are displayed in **Figure 5.1.1**.

Figure 5.1.1 – Roadway and Intersection Levels of Service for Existing Weekday PM Peak Hour Traffic Volumes

As displayed in Figure 5.1.1, many of the roadway segments in the I-435 / Parallel Parkway area currently operate at good levels of service during the weekday PM peak traffic period. The existing signalized intersections of Parallel Parkway with 106th Street and 98th Street operate with LOS C and LOS B, respectively, during the weekday PM peak hour.

It should be noted that the signalized intersection of Parallel Parkway with 106th Street has limited phasing opportunities due to intersection geometry and forced split phase signal timing. As an isolated intersection, it operates with LOS C but in a coordinated system it would be expected to operate at LOS D.

5.2 DESIGN YEAR 2040 NO BUILD IMPROVEMENTS

A future travel demand model, including widening improvements of State Avenue between I-435 and K-7, upgrading 118th Street between State Avenue and Donahoo Road, reconstructing the system interchange of I-70 / K-, adding traffic signals at primary intersections throughout the study area, and other planned improvements listed in Chapter 2, was developed to reflect the anticipated Design Year 2040 land uses and the committed roadway network improvements anticipated to be completed by 2040 (i.e. No Build condition). After running this version of the travel demand model, traffic volume projections were developed that would be expected during the Design Year 2040 weekday PM peak hour, assuming no major improvements were constructed at the I-435 interchange or at major at-grade intersections within the Parallel Parkway corridor.

It should be noted that under this scenario, the intersection of Parallel Parkway with 104th Street functions as a right-in / right-out and must continue to operate as a right-in / right-out as long as the interchange at I-435 and Parallel Parkway remains a cloverleaf interchange. This constraint is due to the close proximity of 104th Street and the ramp from eastbound Parallel Parkway to southbound I-435.

The expected Design Year 2040 weekday PM peak hour traffic volumes with the existing I-435 interchange configuration are displayed on **Exhibit 5.2.1**. **Figure 5.2.1** is a graphical representation of the expected roadway segment level of service for the Design Year 2040 No Build Improvements.

Figure 5.2.1 – Roadway and Intersection Levels of Service for No Build Design Year 2040 Weekday PM Peak Hour Traffic Volumes

The completed No Build travel demand model analyses determined specific movements at the interchange of I-435 with Parallel Parkway would be expected to operate at very poor levels of service during the 2040 PM peak traffic period. The northbound I-435 loop ramp to westbound Parallel Parkway would be expected to fail due to increased traffic volumes projected for this area. Additionally, the eastbound Parallel Parkway ramp to southbound I-435 would be expected to operate at LOS E.

The signalized intersections of Parallel Parkway with 106th Street and 98th Street would be expected to operate with LOS D and LOS C, respectively, during the Design Year 2040 weekday PM peak hour. In the same time period, the northbound weave on I-435 would be expected to operate with LOS C, while the southbound weave on I-435 would be expected to operate with LOS B. Additionally the eastbound and westbound weaves on Parallel Parkway would be expected to operate with LOS A and LOS C respectively.

As the No Build travel demand model analyses were completed along Parallel Parkway, near the I-435 interchange, it was clear this interchange also needed further review. A series of Design Year 2040 weekday PM peak period travel demand models were constructed to evaluate a variety of geometric modifications along the Parallel Parkway corridor.

- **I-435 and Parallel Parkway Interchange Improvements Review**
  - *No Build at Parallel Parkway with State Avenue Corridor Improvements*
  - *Standard Diamond Interchange at Parallel Parkway with State Avenue Corridor Improvements*
  - *Single Point Urban Interchange at Parallel Parkway with State Avenue Corridor Improvements*
  - *Diverging Diamond Interchange at Parallel Parkway with State Avenue Corridor Improvements*

5.3 DESIGN YEAR 2040 I-435 INTERCHANGE IMPROVEMENT REVIEW

Each of the following I-435 interchange scenarios evaluate the operations of Parallel Parkway between 106th Street and 98th Street assuming the SPUI at the intersection of State Avenue with Village West Parkway and the DDI at the interchange of I-435 with State Avenue have been constructed as described in Chapter 4.

I-435 and Parallel Parkway: No Build with State Avenue Corridor Improvements
This model scenario evaluates the effects of the State Avenue corridor improvements on the unimproved interchange of I-435 with Parallel Parkway. The Design Year 2040 traffic volumes for the existing clover leaf interchange configuration area shown on **Exhibit 5.3.1**. As displayed in **Figure 5.3.1**, traffic operations on the majority of the ramps and the arterial roadway segments would be expected to operate at an acceptable level of service during the Design Year 2040 weekday PM peak period. The two exceptions are the northbound I-435 off-ramp to westbound Parallel Parkway and the eastbound Parallel Parkway on-ramp to southbound I-435, which are expected to operate with LOS E.

The State Avenue improvements attract more traffic to the I-435 / State Avenue interchange, specifically northbound traffic, improving the level of service on I-435 between State Avenue and Parallel Parkway from LOS D to LOS C. Additionally, the improvements on the State Avenue corridor improve the level of service on the northbound I-435 off-ramp to westbound Parallel Parkway by reducing traffic expected to use this loop ramp.

The signalized intersections of Parallel Parkway with 106th and 98th Street would both be expected to operate with LOS C during the Design Year 2040 weekday PM peak hour. The northbound and the southbound weaves on I-435 would be expected to operate with LOS C. The change in the southbound weave level of service is due to increased through traffic on I-435 expected to use the improved State Avenue interchange. Additionally the eastbound and westbound weaves on Parallel Parkway would be expected to operate with LOS A and LOS C respectively.

Figure 5.3.1 – Roadway and Intersection Levels of Service for No Build on Parallel Parkway with State Avenue Corridor Improvements Design Year 2040 Weekday PM Peak Hour Traffic Volumes

I-435 and Parallel Parkway: Standard Diamond Interchange with State Avenue Corridor Improvements

The modification of the existing clover leaf interchange at I-435 with Parallel Parkway was evaluated as a standard diamond interchange. In additional to the interchange modification, the intersection of Parallel Parkway with 104th Street / Prairie Crossing was converted to a 4-way, signalized intersection. The improvements at this intersection provide direct access to the large, currently vacant piece of ground north of Parallel Parkway making it ideal for commercial development. A secondary benefit to the improvements at 104th Street / Prairie Crossing is the improved signal operations at 106th Street by removing the additional green time required to accommodate the u-turn on westbound Parallel Parkway. Also at 106th Street under this scenario, the assumption was made that geometrics improvements had been completed at this intersection to eliminate the need for split phase signal timings.

The Design Year 2040 weekday PM peak hour traffic volumes for the standard diamond interchange are shown on **Exhibit 5.3.2**. As displayed in **Figure 5.3.2**, Parallel Parkway would be expected to operate at acceptable to good levels of service during the Design Year 2040 weekday PM peak period. Traffic operations on the ramps to and from the north would be expected to operate at good levels of service while the ramps to and from the south would be expected to operate at a poor LOS D. The signalized intersections on Parallel Parkway would be expected to operate at LOS C with the exception of the intersection of the southbound I-435 ramp with Parallel Parkway which would be expected to operate at LOS B.

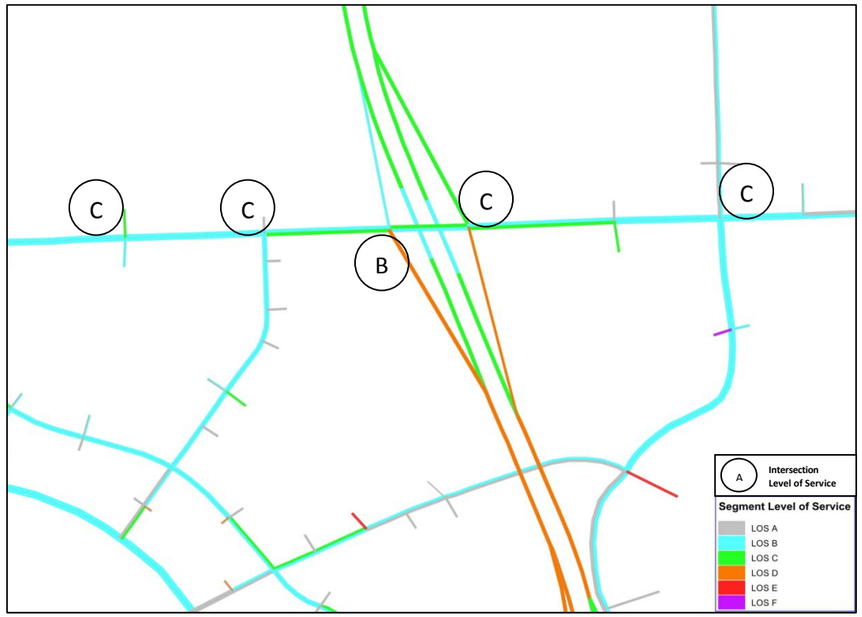

Figure 5.3.2 – Roadway and Intersection Levels of Service for Standard Diamond Interchange Configuration at Parallel Parkway with State Avenue Corridor Improvements Design Year 2040 Weekday PM Peak Hour Traffic Volumes

This interchange improvement concept would require three through lanes in each direction on Parallel Parkway, along with dual left-turn lanes for both eastbound and westbound movements. The segment of Parallel Parkway under I-435 would need to provide for an 8 to 10-lane cross section. The current I-435 bridge over Parallel Parkway could accommodate 4 lanes (three through lanes and a left-turn lane) in each direction with no additional room for widening improvements. The required second left-turn lane could be constructed between the bridge column and the signalized intersection in either direction from the bridge. Utilizing the existing bridge reduces construction cost for this improvement type and minimizes construction-related traffic management issues for this region.

I-435 and Parallel Parkway: Single Point Urban Interchange (SPUI) with State Avenue Corridor Improvements

The modification of the existing clover leaf interchange at I-435 with Parallel Parkway was evaluated as a Single Point Urban Interchange (SPUI). In addition to the interchange modification, the intersection of Parallel Parkway with 104th Street / Prairie Crossing was converted to a 4-way, signalized intersection. The improvements at this intersection provides direct access to the large, currently vacant piece of ground north of Parallel Parkway making it ideal for commercial development. A secondary benefit to the improvements at 104th Street / Prairie Crossing is the improved signal operations at 106th Street by removing the additional green time required to accommodate the u-turn on westbound Parallel Parkway. Also at 106th Street under this scenario, the assumption was made that geometrics improvements had been completed at this intersection to eliminate the need for split phase signal timings.

The Design Year 2040 weekday PM peak hour traffic volumes for the SPUI are shown on **Exhibit 5.3.3**. As displayed in **Figure 5.3.3**, Parallel Parkway would be expected to operate at acceptable to good levels of service during the Design Year 2040 weekday PM peak period. Traffic operations on the ramps to and from the north would be expected to operate at good levels of service while the ramps to and from the south would be expected to operate at a poor LOS D.

Figure 5.3.3 – Roadway and Intersection Levels of Service for Single Point Urban Interchange Configuration at Parallel Parkway with State Avenue Corridor Improvements Design Year 2040 Weekday PM Peak Hour Traffic Volumes

The SPUI improvement at the I-435 ramps and Parallel Parkway, under I-435, would be expected to operate at a LOS D during the Design Year 2040 weekday PM peak hour. The intersection of Parallel Parkway with 104th Street / Prairie Crossing would be expected to operate at LOS B while both of the intersections of 106th Street and 98th Street with Parallel Parkway would be expected to operate at LOS C during the Design Year 2040 weekday PM peak hour.

This interchange improvement type would require three through lanes in each direction on Parallel Parkway in addition to a single left-turn lane for the eastbound movement and dual left-turn lanes for westbound movements. This configuration also requires an unobstructed 8-lane cross section under I-435, requiring new construction of

mainline I-435 bridges with long center spans. Bridges of this type are very expensive and the modification of mainline I-435 for this interchange type would be very costly and would create significant traffic management issues during construction.

I-435 and Parallel Parkway: Diverging Diamond Interchange (DDI) with State Avenue Interchange Improvements
The modification of the existing clover leaf interchange at I-435 with Parallel Parkway was evaluated as a Diverging Diamond Interchange (DDI). In additional to the interchange modification, the intersection of Parallel Parkway with 104th Street / Prairie Crossing was converted to a 4-way, signalized intersection. The improvements at this intersection provide direct access to the large, currently vacant piece of ground north of Parallel Parkway making it ideal for commercial development. A secondary benefit to the improvements at 104th Street / Prairie Crossing is the improved signal operations at 106th Street by removing the additional green time required to accommodate the u-turn on westbound Parallel Parkway. Also at 106th Street under this scenario, the assumption was made that geometrics improvements had been completed at this intersection to eliminate the need for split phase signal timings.

The projected traffic volumes for the DDI are shown on **Exhibit 5.3.4**. As displayed in **Figure 5.3.4**, Parallel Parkway would be expected to operate at acceptable to good levels of service during the Design Year 2040 weekday PM peak period. Traffic operations on the ramps to and from the north would be expected to operate at good levels of service while the ramps to and from the south would be expected to operate at a LOS D.

Figure 5.3.4 – Roadway and Intersection Levels of Service for Diverging Diamond Interchange Configuration at Parallel Parkway with State Avenue Corridor Improvements Design Year 2040 Weekday PM Peak Hour Traffic Volumes

Under this scenario, the signalized intersections of the DDI would be expected to operate at LOS C and LOS B at the terminals of the northbound and southbound I-435 ramps respectively. The intersections of Parallel Parkway with 104th Street / Prairie Crossing, and 106th Street would also be expected to operate at LOS C during the Design Year 2040 weekday PM peak hour. The intersection of Parallel Parkway with 98th Street would be expected to operate at LOS D during the Design Year 2040 weekday PM peak hour, but is 4 seconds of delay from operating at LOS C.

This interchange improvement type would require three through lanes in each direction on Parallel Parkway under I-435. The current I-435 bridge over Parallel Parkway could accommodate 3 lanes in each direction. Utilizing the existing bridge reduces construction cost for this improvement type and minimizes construction-related traffic management issues for this alternative.

5.4 ALTERNATIVE LAND USE DESIGN YEAR 2040 I-435 INTERCHANGE IMPROVEMENT REVIEW

An alternate land use scenario was developed to evaluate traffic conditions based on higher density land use projections near the northwest quadrant of the I-435 interchange with Parallel Parkway. This sensitivity analysis was developed to evaluate any operational deficiencies at the signalized intersections on Parallel Parkway and at the I-435 / Parallel Parkway interchange due to increased traffic volumes generated by the higher density development.

I-435 and Parallel Parkway: Standard Diamond Interchange
With the increased land use, the Design Year 2040 weekday PM peak hour traffic volumes for Standard Diamond Interchange scenario are shown on **Exhibit 5.4.1**. In addition to the interchange modification, the intersection of Parallel Parkway with 104th Street / Prairie Crossing would require an additional southbound left-turn lane.

Under this scenario, the roadway segments on Parallel Parkway would be expected to operate at acceptable to good levels of service during the Design Year 2040 weekday PM peak period. The northbound I-435 ramp signal would be expected to operate at LOS D while the southbound I-435 ramp signal would be expected to operate at LOS B. Additionally the intersections of Parallel Parkway with 106th Street, 104th Street / Prairie Crossing, and 98th Street would be expected to operate at LOS C. When compared to the projected land uses in the previous section, the increased land use would only be expected to change the level of service at the signalized intersection of the northbound I-435 ramp from a LOS C to a LOS D while carrying nearly 350 additional vehicles in each direction on Parallel Parkway in the Design Year 2040 weekday PM peak period.

This interchange improvement concept with the alternative land use scenario would require three through lanes in each direction on Parallel Parkway, along with dual left-turn lanes for both eastbound and westbound movements. The existing I-435 bridge over Parallel Parkway could accommodate four lanes (three through lanes and a left-turn lane) in each direction. The required second left-turn lanes could be constructed between the bridge column and the signalized intersection in either direction from the bridge. Utilizing the existing bridge reduces construction cost for this improvement type and minimizes traffic management issues for this region.

I-435 and Parallel Parkway: Diverging Diamond Interchange (DDI)
With the increased land use, the Design Year 2040 weekday PM peak hour traffic volumes for the DDI scenario are shown on **Exhibit 5.4.2**. In additional to the interchange modification, the intersection of Parallel Parkway with 104th Street / Prairie Crossing would require an additional southbound left-turn lane.

The roadway segments of Parallel Parkway would be expected to operate at acceptable to good levels of service during the Design Year 2040 weekday PM peak period. The northbound I-435 ramp signal would be expected to operate at LOS C while the southbound I-435 ramp would be expected to operate at LOS B. The signalized intersections of Parallel Parkway with 104th Street / Prairie Crossing, and 106th Street would be expected to operate at LOS C. Additionally, the intersection of Parallel Parkway with 98th Street would be expected to operate at poor LOS D. When compared to the projected land uses in the previous section, the increased land use would only be expected to reduce the level of service at the signalized intersection of Parallel Parkway with 98th Street from a LOS C to a LOS D while carrying nearly 200 additional vehicles in each direction on Parallel Parkway in the Design Year 2040 weekday PM peak period.

This interchange improvement type with the alternative land use scenario would require three through lanes in each direction on Parallel Parkway under I-435. The existing I-435 bridge over Parallel Parkway could accommodate the required lanes in each direction. Utilizing the existing bridge reduces construction cost for this improvement type and minimizes construction-related traffic management issues for this region.

5.5 PRELIMINARY IMPROVEMENTS AND ESTIMATES

Based on the completed detailed operational analyses and the preliminary schematics of required interchange enhancements, detailed geometric layouts and cost estimates were prepared for the construction of a Standard Diamond Interchange and a Diverging Diamond Interchange at the existing interchange of I-435 and Parallel Parkway.

There are many factors that have been evaluated in the development of the preliminary layouts and cost estimates. The total project costs include estimates of roadway / bridge / retaining wall construction, major utility relocations, project design, construction observation fees, and other major items that typically contribute to the overall cost of a project. The cost estimates were developed based on 2010 planning and program estimates and do not include inflation for future year construction.

I-435 and Parallel Parkway: Standard Diamond Interchange

Based on the completed preliminary layouts shown on **Exhibit 5.5.1**, the Standard Diamond Interchange has a total project cost of about $10,600,000, with $8,100,000 in construction, $670,000 in utility relocations, and $1,900,000 in design and construction observation services. A detailed breakdown of the project cost estimates is displayed in **Figure 5.5.1** on the following page.

I-435 and Parallel Parkway: Diverging Diamond Interchange

Based on the completed preliminary layouts shown on **Exhibit 5.5.2**, the Diverging Diamond Interchange has a total project cost of about $9,400,000, with $7,100,000 in construction, $670,000 in utility relocations, and $1,650,000 in design and construction observation services. A detailed breakdown of the project cost estimates is displayed in **Figure 5.5.2** on the following page.

PARALLEL PARKWAY & I-435 DIAMOND INTERCHANGE — **GBA**
Wyandotte County — May 28, 2010
Design Study Plans -- Engineer's Opinion of Probable Construction Costs

Item	Quantity	Unit	Unit Cost	Amount
DIAMOND CONSTRUCTION				
Removing Existing Structures	1	Lumpsum	$ 25,000.00	$ 25,000
Contractor Construction Staking	1	Lumpsum	$ 100,000.00	$ 100,000
Mobilization	1	Lumpsum	$ 200,000.00	$ 200,000
Clearing and Grubbing	1	Lumpsum	$ 10,000.00	$ 10,000
Common Excavation	71,200	C.Y.	$ 10.00	$ 712,000
Common Excavation (Contractor Furnished)	0	C.Y.	$ 10.00	$ -
Rock Excavation (includes Pavement Removal)	17,800	C.Y.	$ 20.00	$ 356,000
Compaction of Earthwork (Type A) (MR-5-5)	13,900	C.Y.	$ 10.00	$ 139,000
Permanent Concrete Safety Barrier Type II (F-Shape)	500	L.F.	$ 150.00	$ 75,000
Concrete Pavement	38,900	Sq. yd.	$ 60.00	$ 2,334,000
Shoulder	7,000	Sq. yd.	$ 55.00	$ 385,000
Curb and Gutter (2')	8,700	L.F.	$ 20.00	$ 174,000
Concrete Treated Base	48,400	Sq. yd.	$ 10.00	$ 484,000
Subgrade Treatment	50,900	Sq. yd.	$ 10.00	$ 509,000
Traffic Signal	1	Lumpsum	$ 200,000.00	$ 200,000
Permanent Signing	1	Lumpsum	$ 100,000.00	$ 100,000
Permanent Pavement Marking	1	Lumpsum	$ 50,000.00	$ 50,000
Street Lighting	1	Lumpsum	$ 100,000.00	$ 100,000
UG Signal Interconnect (98th Street to 104th Street)	1	Lumpsum	$ 200,000.00	$ 200,000
Drainage	1	Lumpsum	$ 100,000.00	$ 100,000
Erosion Control	1	Lumpsum	$ 100,000.00	$ 100,000
Construction Traffic Control & Temp. Pavements (10%)				$ 636,000
Contingency (15%)				$ 1,049,000
DIAMOND CONSTRUCTION SUBTOTAL				***$ 8,038,000***
Surveys, PS&E Design, and Bidding Assistance (10%)				$ 803,800
Geotechnic Design Services				$ 25,000
Post Design Services				$ 25,000
Full Time LPA Project Observation (12.5%)				$ 1,004,750
UTILITY RELOCATIONS				
Utility Relocations - BPU Underground Electric	1	Lumpsum		$ -
Utility Relocations - BPU 36" Water Main	1	Lumpsum		$ 70,000
Utility Relocations - Level 3	1	Lumpsum		$ 435,000
Utility Relocations - Misc	1	Lumpsum		$ 50,000
Utility Construction Traffic Control (5%)				$ 27,800
Contingency (15%)				$ 87,400
UTILITY RELOCATION SUBTOTAL				***$ 670,200***
Utility Relocations Management and Observation (5%)				$ 33,510
DESIGN AND OBSERVATION SUBTOTAL				$ 1,892,060
PROJECT TOTAL				***$ 10,600,260***

Figure 5.5.1 - I-435 and Parallel Parkway Standard Diamond Interchange Preliminary Estimates of Probable Construction Costs

Parallel Parkway & I-435 DDI				GBA
Wyandotte County				May 28, 2010
Design Study Plans -- Engineer's Opinion of Probable Construction Costs				
Item	**Quantity**	**Unit**	**Unit Cost**	**Amount**
DDI CONSTRUCTION				
Removing Existing Structures	1	Lumpsum	$ 20,000.00	$ 20,000
Contractor Construction Staking	1	Lumpsum	$ 85,000.00	$ 85,000
Mobilization	1	Lumpsum	$ 170,000.00	$ 170,000
Clearing and Grubbing	1	Lumpsum	$ 10,000.00	$ 10,000
Common Excavation	49,500	C.Y.	$ 10.00	$ 495,000
Common Excavation (Contractor Furnished)	0	C.Y.	$ 10.00	$ -
Rock Excavation (includes Pavement Removal)	1,900	C.Y.	$ 20.00	$ 38,000
Compaction of Earthwork (Type A) (MR-5-5)	17,700	C.Y.	$ 10.00	$ 177,000
Permanent Concrete Safety Barrier Type II (F-Shape)	600	L.F.	$ 150.00	$ 90,000
Concrete Pavement	33,400	Sq. yd.	$ 60.00	$ 2,004,000
Shoulder	6,400	Sq. yd.	$ 55.00	$ 352,000
Curb and Gutter (2')	10,300	L.F.	$ 20.00	$ 206,000
Concrete Treated Base	42,700	Sq. yd.	$ 10.00	$ 427,000
Subgrade Treatment	44,900	Sq. yd.	$ 10.00	$ 449,000
Traffic Signal	1	Lumpsum	$ 200,000.00	$ 200,000
Permanent Signing	1	Lumpsum	$ 300,000.00	$ 300,000
Permanent Pavement Marking	1	Lumpsum	$ 50,000.00	$ 50,000
Street Lighting	1	Lumpsum	$ 100,000.00	$ 100,000
UG Signal Interconnect (98th Street to 104th Street)	1	Lumpsum	$ 200,000.00	$ 200,000
Drainage	1	Lumpsum	$ 100,000.00	$ 100,000
Erosion Control	1	Lumpsum	$ 100,000.00	$ 100,000
Construction Traffic Control & Temp. Pavements (10%)				$ 558,000
Contingency (15%)				$ 920,000
DDI CONSTRUCTION SUBTOTAL				***$ 7,051,000***
Surveys, PS&E Design, and Bidding Assistance (10%)				$ 705,100
Geotechnic Design Services				$ 25,000
Post Design Services				$ 25,000
Full Time LPA Project Observation (12.5%)				$ 881,375
UTILITY RELOCATIONS				
Utility Relocations - BPU Underground Electric	1	Lumpsum		$ -
Utility Relocations - BPU 36" Water Main	1	Lumpsum		$ 70,000
Utility Relocations - Level 3	1	Lumpsum		$ 435,000
Utility Relocations - Misc	1	Lumpsum		$ 50,000
Utility Construction Traffic Control (5%)				$ 27,800
Contingency (15%)				$ 87,400
UTILITY RELOCATION SUBTOTAL				***$ 670,200***
Utility Relocations Management and Observation (5%)				$ 5,760
DESIGN AND OBSERVATION SUBTOTAL				$ 1,642,235
PROJECT TOTAL				***$ 9,363,435***

Figure 5.5.2 - I-435 and Parallel Parkway DDI Preliminary Estimates of Probable Construction Costs

5.6 PARALLEL PARKWAY CORRIDOR RECOMMENDATIONS

Based on the completed analyses and reviews, there are a series of geometric and traffic control improvements that should be implemented on Parallel Parkway between 106th Street on the west and 98th Street on the east to accommodate the Design Year 2040 weekday PM peak period traffic volumes, as well as to satisfy the Saturday and other off-peak or event related traffic demands.

As future traffic volumes warrant at specific locations along the Parallel Parkway corridor, consider implementing the following improvements listed below:

- Reconstruct the intersections of Parallel Parkway with 110th Street / Hutton Road, Village West Parkway, and 106th Street to eliminate the currently required split phase signal timing plans, to allow for better coordination between signals, and to improve the level of service at the intersections and along the corridor.

- Reconstruct the existing clover-leaf interchange of I-435 with Parallel Parkway as a Standard Diamond Interchange or a Diverging Diamond Interchange. The Standard Diamond Interchange requires additional through lanes under I-435 when compared to the DDI and would be expected to be more expensive to construct. The DDI provides more capacity than the Standard Diamond Interchange, increasing the traffic able to use Parallel Parkway. Both interchange choices would be an acceptable alternative to the existing cloverleaf interchange and each design concept utilizes the existing I-435 bridges. The selection for this interchange replacement should consider the observed operations of the State Avenue and I-435 interchange DDI improvement.

  The SPUI interchange provides nearly the same operational level of service as the Standard Diamond Interchange or the DDI but would be significantly more expensive to construct due to the required bridge replacements. This interchange type is not a recommended alternative to the existing I-435 / Parallel Parkway interchange.

- After the interchange improvement is completed, convert the right-in / right-out intersection at 104th Street / Prairie Crossing to a fully directional, signalized intersection.

- Modify the signalized intersections of 106th Street and 98th Street by adding additional lanes as needed to satisfy traffic growth.