

# Dayton Transportation Plan 2016 Update

*Prepared for:*  
City of Dayton, MN



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Dayton, MN 55327



Responsive partner.  
Exceptional outcomes.

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## 1.0 Summary

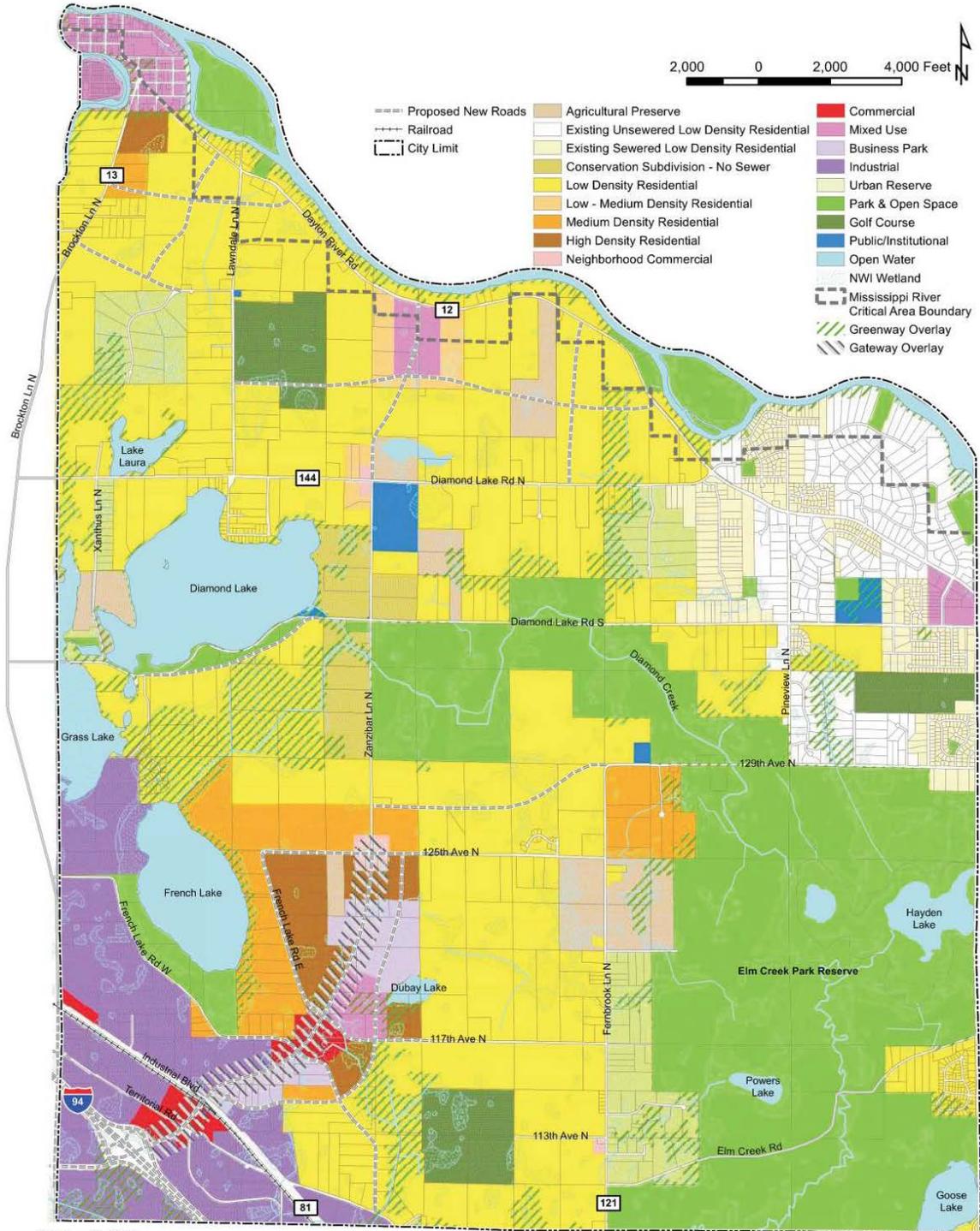
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The City of Dayton Transportation Plan was updated to account for changes in the Future Lane Use Plan, which includes land use impacts related to the current Brockton interchange location. The Transportation Plan and associated roadway cost information were last updated in 2009. Since that time, the Future Lane Use plan was updated to account for development needs and impacts of the future Brockton interchange.

Figure 1 shows the Future Land Use Plan. Figure 2 shows the planned location of the Brockton interchange.

Figure 1-1: Future Land Use Plan

**2030 Future Land Use**  
City of Dayton, Minnesota



October 15, 2014

**FIGURE 1**

**Figure 1-2: Interchange Location**



SOURCE: SRF

**FIGURE 2**

## 2.0 Traffic Forecasts

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Existing transportation planning information for the City of Dayton was gathered and reviewed to fully understand previous methods and results. The following documents were reviewed:

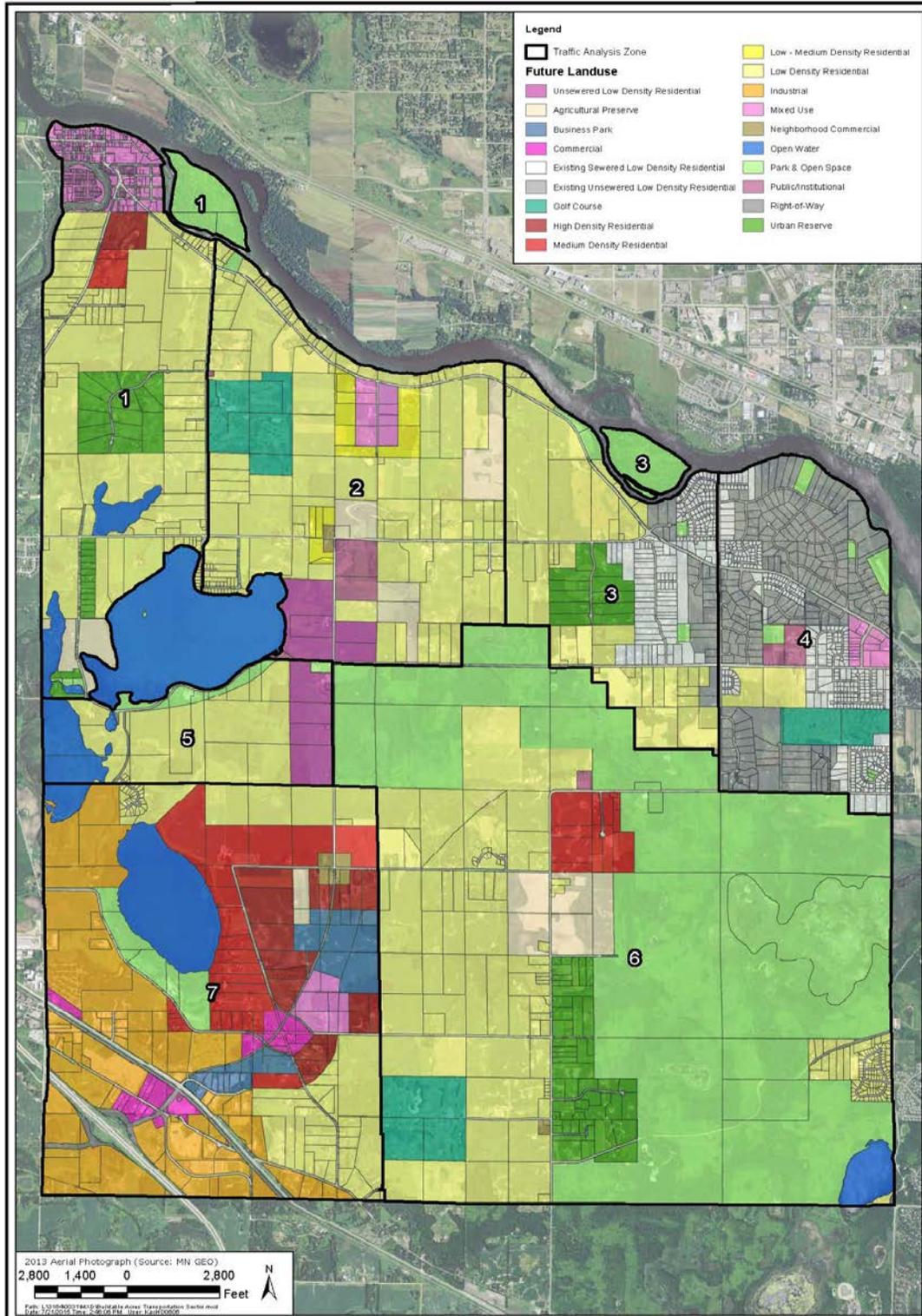
- ▲ 2009 Transportation Plan
- ▲ 2008 Comprehensive Plan
- ▲ Hennepin County Transportation Plan
- ▲ NW Hennepin County I-94 Study
- ▲ Current planned roadway improvements
- ▲ Development studies (EAW, AUAR, etc.)
- ▲ Other studies with a transportation component

Current land use information and the Dayton Future Land Use Plan updated in the summer of 2014 were used to determine future traffic volume forecasts for major roadways within the city. The Future Land Use Plan provides a framework for full build-out of the city, including the location and density of all future uses.

For traffic forecasting purposes, the city was divided into the seven Traffic Analysis Zones (TAZ) shown in Figure 3. Through the use of existing GIS information, the amount of buildable area for each land use type was determined in each TAZ. Trip generation estimates were developed for each TAZ using data presented in the Institute of Transportation Engineers' *Trip Generation*, Ninth Edition.

Using existing traffic and turn movement volume information, trip distribution percentages were developed for each TAZ. The gross trip generation includes 15% to 25% of trips that occur within each TAZ. External trips were assigned to the surrounding roadway system using the trip distribution percentages, resulting in daily traffic volumes generated by all future lane uses.

Figure 2-1: Buildable Land Area and Traffic Analysis Zones



## 3.0 Future Roadway System

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Based on the resultant trip distribution and traffic volumes, an initial roadway system was developed. This roadway system accounts for the type and location of roadways needed to accommodate the forecasted traffic volumes. The necessary roadway capacity and functional classification were identified for the forecasted volumes. Right-of-way needs and roadway cross-sections have been identified.

Year 2040 major roadway options and traffic forecasts are shown in Figures 4 through 9. Option A was identified as most feasible since does not involve routing a roadway through Elm Creek Park reserve. Options B and C are still feasible but will require further discussions with Three Rivers Park District staff.

Figure 3-1: Year 2040 Major Roadways Option A

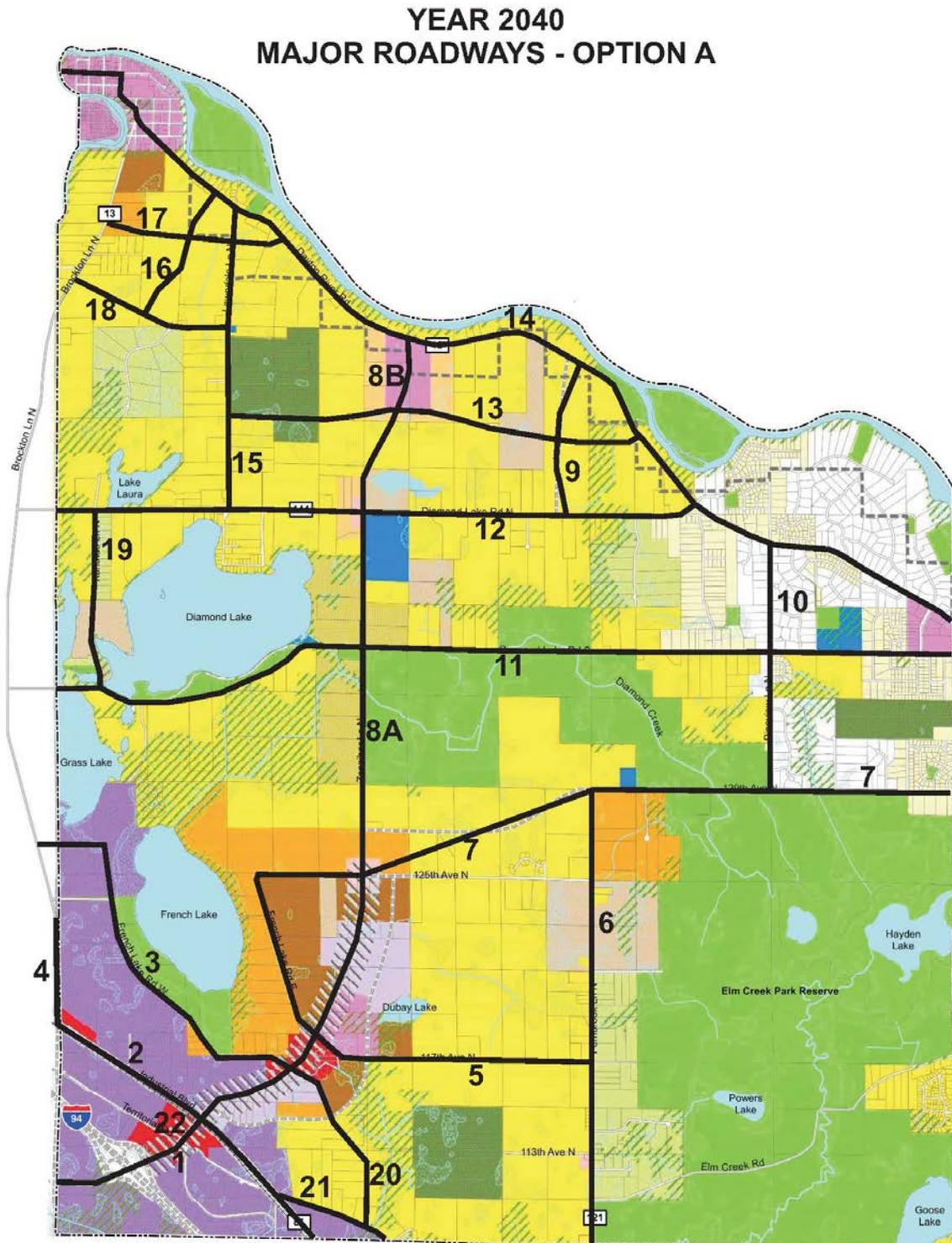


Figure 3-2: Year 2040 Traffic Volumes Option A

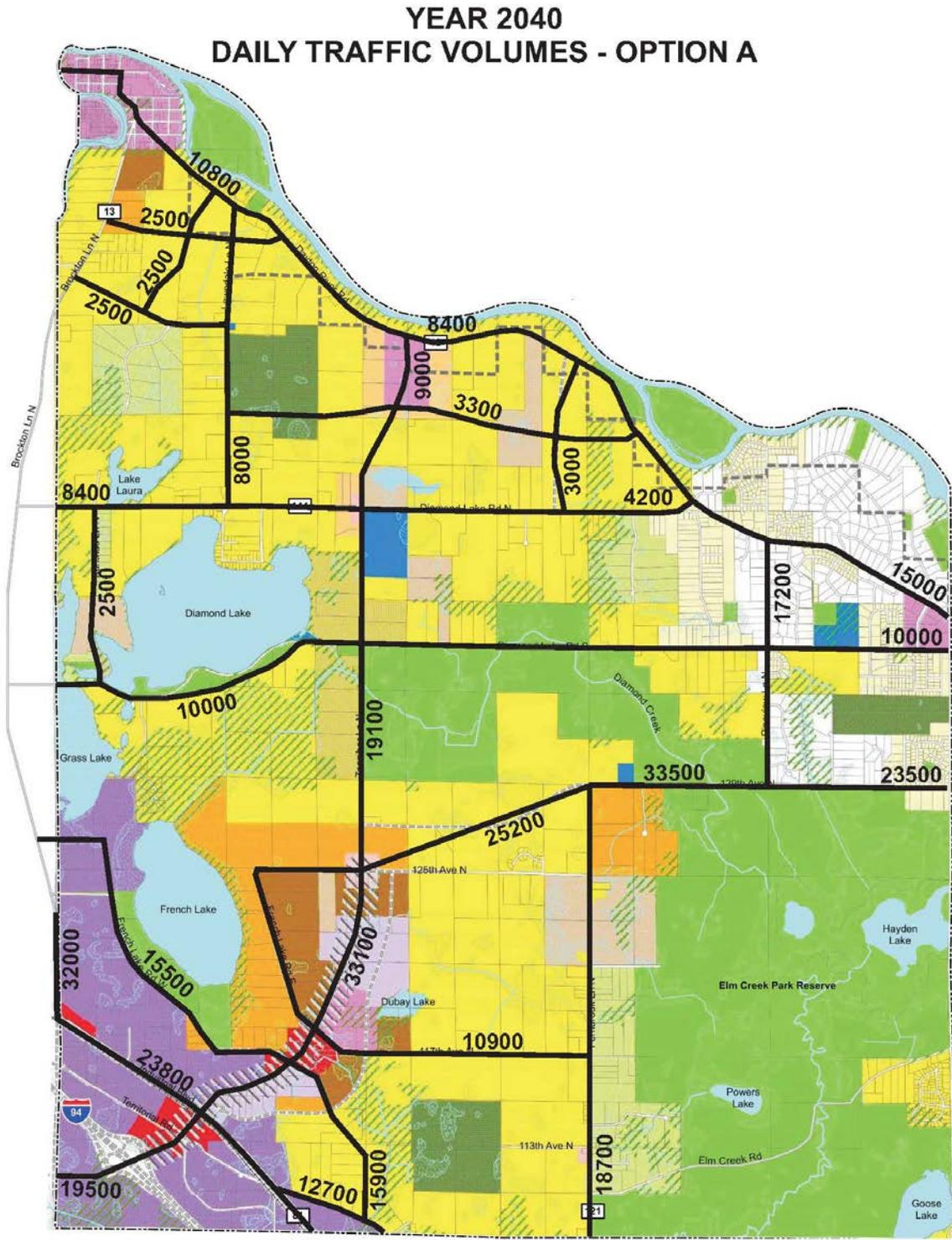


Figure 3-3: Year 2040 Major Roadways Option B

**YEAR 2040  
MAJOR ROADWAYS - OPTION B**

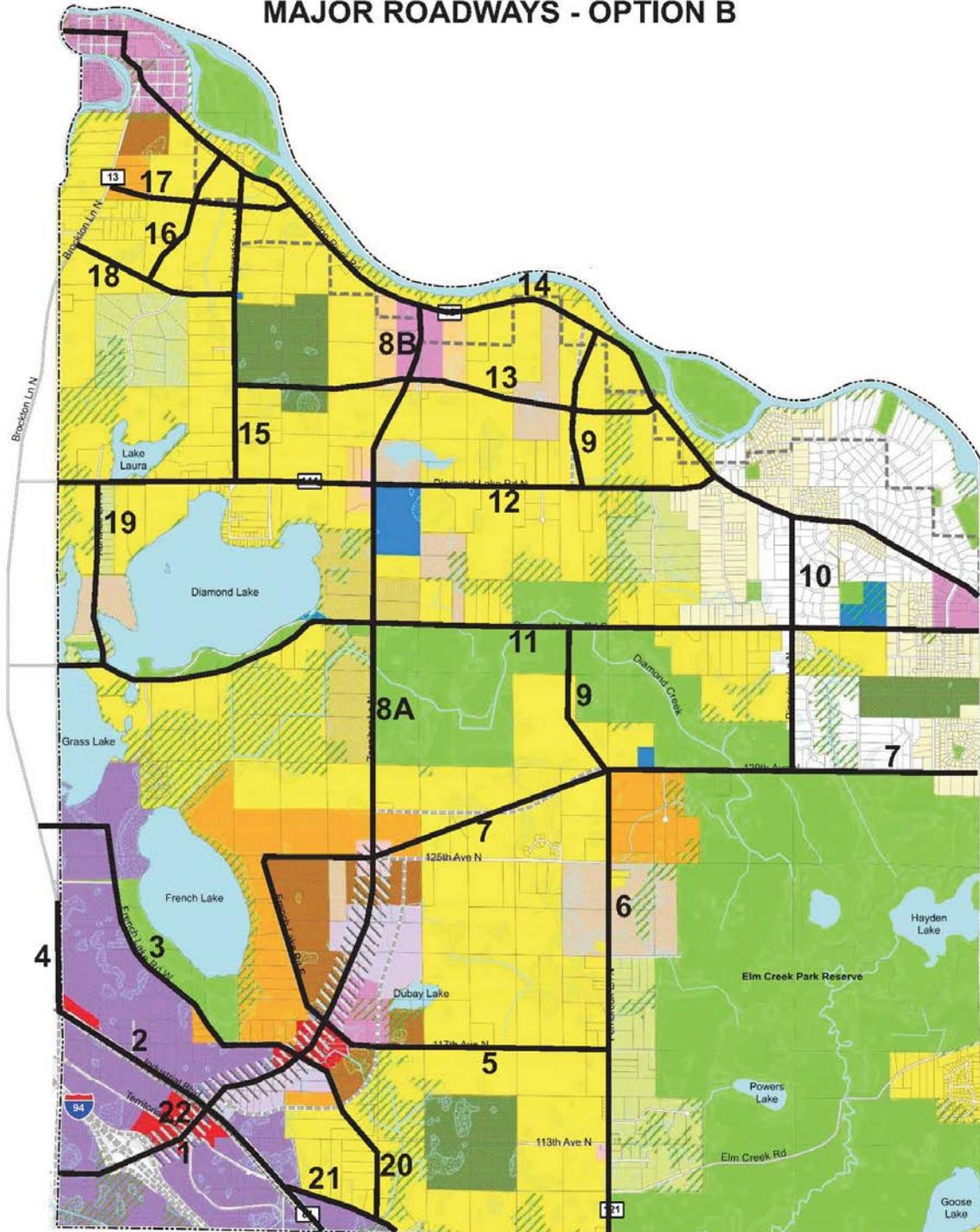




Figure 3-5: Year 2040 Major Roadways Option C

### YEAR 2040 MAJOR ROADWAYS - OPTION C

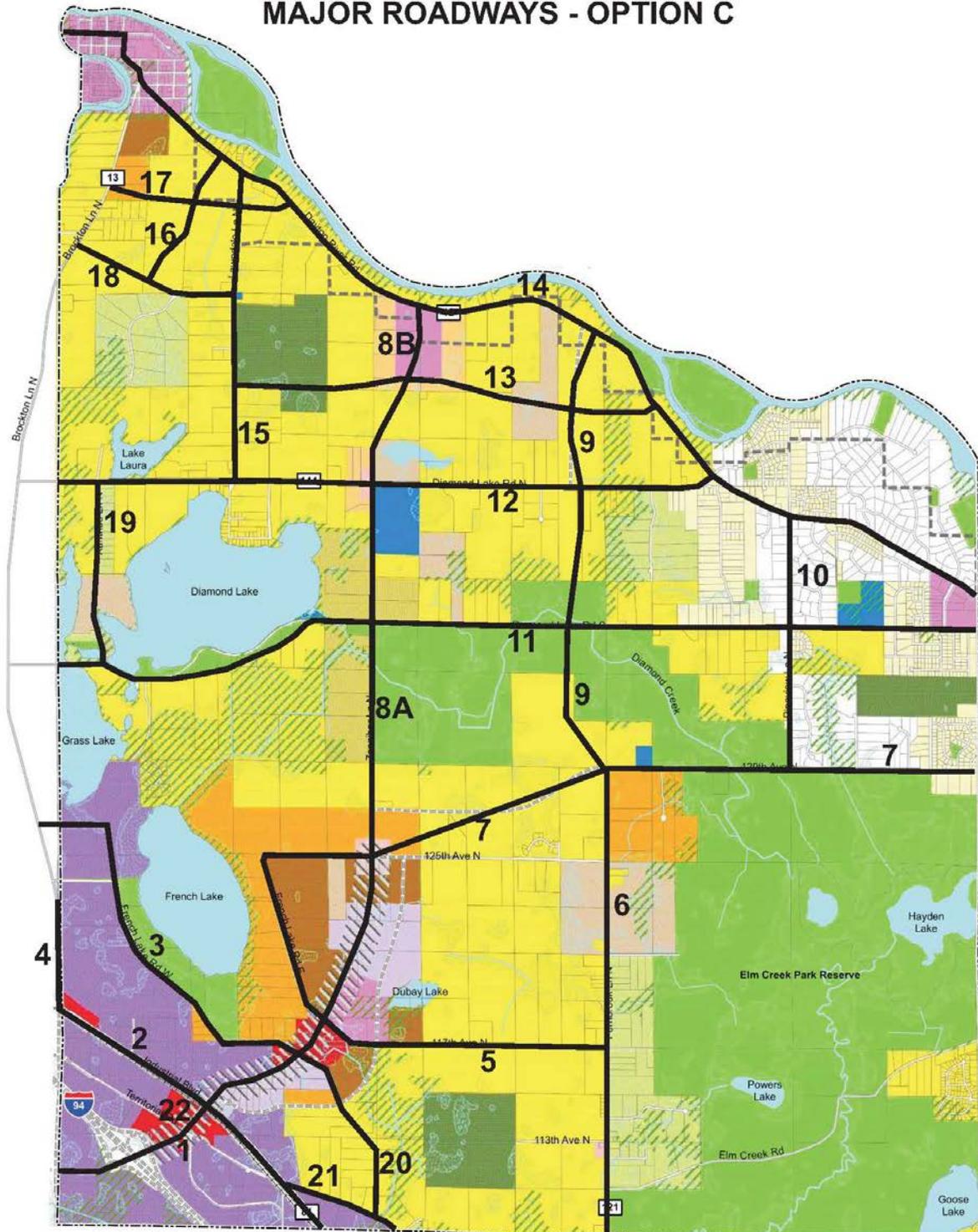
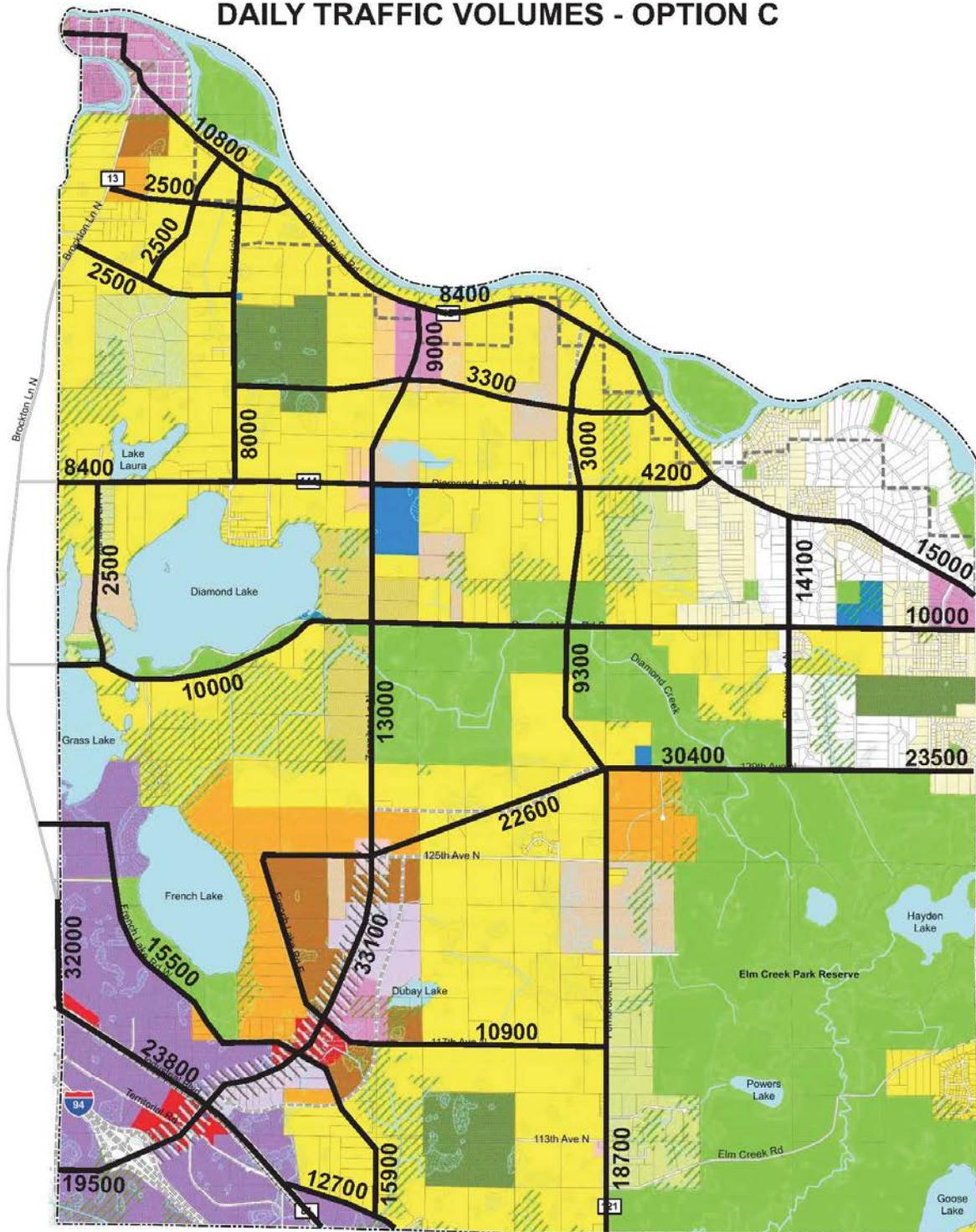


Figure 3-6: Year 2040 Traffic Volumes Option C

**YEAR 2040  
DAILY TRAFFIC VOLUMES - OPTION C**



## 4.0 Transportation Plan Cost Estimates and Fees

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The 2040 traffic volume forecasts were used to determine the recommended number of lanes and right-of-way for each roadway. The additional right-of-way needed over existing conditions and anticipated construction costs were combined to determine the total cost estimate for each roadway segment. The resultant cost estimates are shown in Tables 1, 2, and 3.

### 4.1 TRUNK TRANSPORTATION FEE

The updated costs discussed above, allow for a calculation of trunk transportation fees based on the remaining developable acres within the City.

Summary of current and proposed fees:

Current Rates		Proposed Rates		Increase
<u>Non-Residential</u>	<u>Residential</u>	<u>Non-Residential</u>	<u>Residential</u>	
\$11,190/acre	\$2,500/unit	\$14,400	\$3,217	~29%

The proposed fees are based on collecting 50% of the needed costs for transportation improvements, with remaining costs to be funding through other sources, such as State Aid or grants.

- 1 2040 Transportation Plan Cost for Major Roadways – Option A
- 2 2040 Transportation Plan Cost for Major Roadways – Option B
- 3 2040 Transportation Plan Cost for Major Roadways – Option C

**Table 1**  
**2040 Dayton Transportation Plan Cost Estimate**  
**Major Roadways - Option A**

Map ID	Road	Functional Classification	Present Owner	Future Owner	2040 Volume Forecast	2040 Recomm. Lanes	Existing ROW (ft width)	ROW Needs (ft width)	ROW Needs (sq. ft.)	Existing Length	Future Length	ROW Cost	Construct Cost per Foot	Dayton Cost (%)	Dayton Construct Cost	Total Dayton Cost
1	Holly Lane Extension CR 117	A-minor Connector	County	County	19500	4	0	100-130	622700	0	4790	\$1,245,400	1050	80	\$4,023,600	\$5,269,000
2	CSAH 81	A-minor Expander	County	County	23800	4	150	100-130	0	9320	9320	\$0	1050	40	\$3,914,400	\$3,914,400
3	W. French Lake Road	B-minor Arterial	City	City	15500	3	75	80-100	346500	8500	9840	\$693,000	800	100	\$7,872,000	\$8,565,000
4	Brockton Lane CR 13	A-minor Expander	County	County	32000	4	100	100-130	145500	4850	4850	\$291,000	1050	40	\$2,037,000	\$2,328,000
5	117th Ave	Collector	City	City	10900	2	75	80-100	202750	8110	8110	\$405,500	500	100	\$4,055,000	\$4,460,500
6	Fernbrook Lane	A-minor Connector	County	County	18700	4	66	100-130	835200	13050	13050	\$1,670,400	1050	80	\$10,962,000	\$12,632,400
7	125th Ave/129th Ave	A-minor Connector	City/County	County	23500-33500	4	66	100-130	1165480	16870	17530	\$2,330,960	1050	80	\$14,725,200	\$17,056,160
8A	Zanzibar Ave	A-minor Connector	City	County	19100-33100	4	66	100-130	1478100	10400	16650	\$2,956,200	1050	80	\$13,986,000	\$16,942,200
8B	Zanzibar Ave	A-minor Connector	City	County	9000	3	0	80-100	522000	0	5220	\$1,044,000	800	80	\$3,340,800	\$4,384,800
9	new north/south	A-minor Connector	-	City	3000	2	0	60-80	400000	0	5000	\$800,000	500	100	\$2,500,000	\$3,300,000
10	Pineview Lane	A-minor Connector	City	City	17200	4	80	100-130	354500	7090	7090	\$709,000	1050	100	\$7,444,500	\$8,153,500
11	S. Diamond Lake Rd	B-minor Arterial	City	City	10000	2	66	60-80	306320	21880	21880	\$612,640	500	100	\$10,940,000	\$11,552,640
12	N. Diamond Lake Rd	A-minor Expander	County	County	4200-8400	2	66	60-80	258580	18470	18470	\$517,160	500	80	\$7,388,000	\$7,905,160
13	new east/west	Collector	-	City	3300	2	0	60-80	947200	0	11840	\$1,894,400	500	100	\$5,920,000	\$7,814,400
14	Dayton River Road CR 12	A-minor Connector	County	County	8400-15000	2	66	60-80	297500	21250	21250	\$595,000	500	80	\$8,500,000	\$9,095,000
15	Lawndale Lane	Collector	City	City	8000	2	75	60-80	42750	8550	8550	\$85,500	500	100	\$4,275,000	\$4,360,500
16	new north/south	Collector	City	City	2500	2	0	60-80	337600	0	4220	\$675,200	500	100	\$2,110,000	\$2,785,200
17	new east/west	Collector	City	City	2500	2	0	60-80	417600	0	5220	\$835,200	500	100	\$2,610,000	\$3,445,200
18	new east/west	Collector	City	City	2500	2	0	60-80	369600	0	4620	\$739,200	500	100	\$2,310,000	\$3,049,200
19	Xanthus Lane	Collector	City	City	2500	2	66	60-80	72940	5210	5210	\$145,880	500	100	\$2,605,000	\$2,750,880
20	E. French Lake Road	Collector	City	City	15900	3	66	80-100	188240	5360	5420	\$376,480	800	100	\$4,336,000	\$4,712,480
21	Territorial Road	Collector	City	City	12700	3	75	80-100	76250	3050	3050	\$152,500	800	100	\$2,440,000	\$2,592,500
22	Interchange															\$5,000,000
																\$152,069,120

**Table 2**  
**2040 Dayton Transportation Plan Cost Estimate**  
**Major Roadways - Option B**

Map ID	Road	Functional Classification	Present Owner	Future Owner	2040 Volume Forecast	2040 Recomm. Lanes	Existing ROW (ft width)	ROW Needs (ft width)	ROW Needs (sq. ft.)	Existing Length	Future Length	ROW Cost	Construct Cost per Foot	Dayton Cost (%)	Dayton Construct Cost	Total Dayton Cost
1	Holly Lane Extension CR 117	A-minor Connector	County	County	19500	4	0	100-130	622700	0	4790	\$1,245,400	1050	80	\$4,023,600	\$5,269,000
2	CSAH 81	A-minor Expander	County	County	23800	4	150	100-130	0	9320	9320	\$0	1050	40	\$3,914,400	\$3,914,400
3	W. French Lake Road	B-minor Arterial	City	City	15500	3	75	80-100	346500	8500	9840	\$693,000	800	100	\$7,872,000	\$8,565,000
4	Brockton Lane CR 13	A-minor Expander	County	County	32000	4	100	100-130	145500	4850	4850	\$291,000	1050	40	\$2,037,000	\$2,328,000
5	117th Ave	Collector	City	City	10900	2	75	80-100	202750	8110	8110	\$405,500	500	100	\$4,055,000	\$4,460,500
6	Fernbrook Lane	A-minor Connector	County	County	18700	4	66	100-130	835200	13050	13050	\$1,670,400	1050	80	\$10,962,000	\$12,632,400
7	125th Ave/129th Ave	A-minor Connector	City/County	County	23400-31400	4	66	100-130	1165480	16870	17530	\$2,330,960	1050	80	\$14,725,200	\$17,056,160
8A	Zanzibar Ave	A-minor Connector	City	County	15000-33100	4	66	100-130	1478100	10400	16650	\$2,956,200	1050	80	\$13,986,000	\$16,942,200
8B	Zanzibar Ave	A-minor Connector	City	County	9000	3	0	80-100	522000	0	5220	\$1,044,000	800	80	\$3,340,800	\$4,384,800
9	new north/south	A-minor Connector	-	City	3000-6200	2	0	60-80	748000	0	9350	\$1,496,000	500	100	\$4,675,000	\$6,171,000
10	Pineview Lane	A-minor Connector	City	City	15200	3	80	80-100	141800	7090	7090	\$283,600	1050	100	\$7,444,500	\$7,728,100
11	S. Diamond Lake Rd	B-minor Arterial	City	City	10000	2	66	60-80	306320	21880	21880	\$612,640	500	100	\$10,940,000	\$11,552,640
12	N. Diamond Lake Rd	A-minor Expander	County	County	4200-8400	2	66	60-80	258580	18470	18470	\$517,160	500	80	\$7,388,000	\$7,905,160
13	new east/west	Collector	-	City	3300	2	0	60-80	947200	0	11840	\$1,894,400	500	100	\$5,920,000	\$7,814,400
14	Dayton River Road CR 12	A-minor Connector	County	County	8400-15000	2	66	60-80	297500	21250	21250	\$595,000	500	80	\$8,500,000	\$9,095,000
15	Lawndale Lane	Collector	City	City	8000	2	75	60-80	42750	8550	8550	\$85,500	500	100	\$4,275,000	\$4,360,500
16	new north/south	Collector	City	City	2500	2	0	60-80	337600	0	4220	\$675,200	500	100	\$2,110,000	\$2,785,200
17	new east/west	Collector	City	City	2500	2	0	60-80	417600	0	5220	\$835,200	500	100	\$2,610,000	\$3,445,200
18	new east/west	Collector	City	City	2500	2	0	60-80	369600	0	4620	\$739,200	500	100	\$2,310,000	\$3,049,200
19	Xanthus Lane	Collector	City	City	2500	2	66	60-80	72940	5210	5210	\$145,880	500	100	\$2,605,000	\$2,750,880
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21	Territorial Road	Collector	City	City	12700	3	75	80-100	76250	3050	3050	\$152,500	800	100	\$2,440,000	\$2,592,500
22	Interchange															\$5,000,000
																\$154,514,720

**Table 3**  
**2040 Dayton Transportation Plan Cost Estimate**  
**Major Roadways - Option C**

Map ID	Road	Functional Classification	Present Owner	Future Owner	2040 Volume Forecast	2040 Recomm. Lanes	Existing ROW (ft width)	ROW Needs (ft width)	ROW Needs (sq. ft.)	Existing Length	Future Length	ROW Cost	Construct Cost per Foot	Dayton Cost (%)	Total Dayton Cost	Total Dayton Cost
1	Holly Lane Extension CR 117	A-minor Connector	County	County	19500	4	0	100-130	622700	0	4790	\$1,245,400	1050	80	\$4,023,600	\$5,269,000
2	CSAH 81	A-minor Expander	County	County	23800	4	150	100-130	0	9320	9320	\$0	1050	40	\$3,914,400	\$3,914,400
3	W. French Lake Road	B-minor Arterial	City	City	15500	3	75	80-100	346500	8500	9840	\$693,000	800	100	\$7,872,000	\$8,565,000
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8B	Zanzibar Ave	A-minor Connector	City	County	9000	3	0	80-100	522000	0	5220	\$1,044,000	800	80	\$3,340,800	\$4,384,800
9	new north/south	A-minor Connector	-	City	3000-9300	2	0	60-80	1108000	0	13850	\$2,216,000	500	100	\$6,925,000	\$9,141,000
10	Pineview Lane	A-minor Connector	City	City	14100	3	80	80-100	141800	7090	7090	\$283,600	1050	100	\$7,444,500	\$7,728,100
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22	Interchange															\$5,000,000
																\$157,484,720



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