

Appendix B

Prioritization Memorandum



Rapid City Area MPO Major Street Plan Prioritization

Introduction

The Rapid City Area Metropolitan Planning Organization (MPO) is conducting an analysis of its existing Major Streets Plan (MSP) with the intent of updating this Plan to remove proposed roadway segments that demonstrate slope, constructability, and alignment issues while developing conceptual alignments for key proposed segments. This effort builds off the preliminary review of alignment and constructability issues completed with the development of the MPO's RapidTRIP 2045 Metropolitan Transportation Plan.

This memorandum summarizes a planning-level prioritization of the existing MSP that was completed to identify the key roadway segments recommended for advancement to the conceptual alignment phase. The prioritization analysis used a series of planning-level data to screen the MSP roadway segments and assign each a score based on how well the segment aligns with the MPO's and local jurisdiction's goals for the planned network. This effort resulted in the identification of 40 different proposed segments from the existing MSP that are recommended for advancement to the conceptual alignment phase.

Data and Methodology

Data Sources

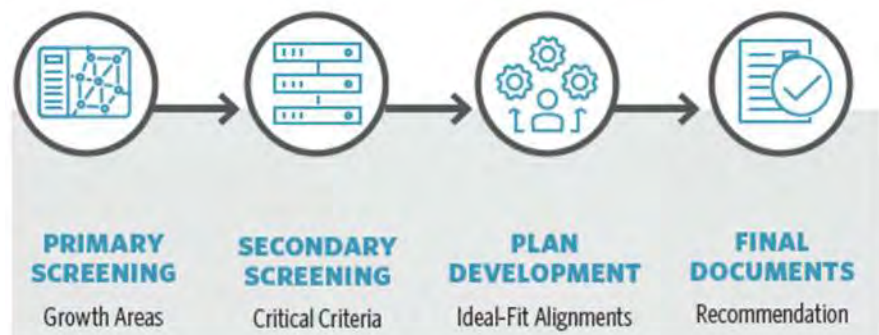
Data used in the planning-level prioritization analysis was sourced from the MPO and was developed as part of RapidTRIP 2045 Metropolitan Transportation Plan. This data includes the MPO's Travel Demand Model (TDM) outputs, including forecasted household and employment growth and forecasted daily traffic volumes; all TDM output forecasts are for future year 2045. Additional data used in the prioritization analysis included existing daily traffic volumes, topographic and alignment constraints identified in the RapidTRIP 2045 MTP, and runway protection zone (RPZ) areas for Ellsworth Air Force Base and Rapid City Regional Airport.

Methodology

The methodology used for the planning-level prioritization analysis, which is summarized in **Figure 1**, was based on a

desktop GIS review of the existing MSP roadway alignments. Roadway segments were evaluated against the data discussed above and assigned scores based on their performance in serving future high growth areas.

Figure 1: MSP Prioritization Approach



Once the 40 roadway segments were scored, they were then ranked by score and assigned a priority level—high, medium, or low—based on how each compared to the other 39 segments.

Higher prioritization scores indicate that a road segment is in a high household and/or employment growth area and provide a connection between two or more segments demonstrating high existing daily traffic volumes or are forecasted to have high daily traffic volumes by 2045. Segments that demonstrate topographic or alignment constraints received a negative score, as did any segment located within a RPZ of the Ellsworth Air Force Base or the Rapid City Regional Airport. **Table 1** summarizes the prioritization scoring approach. **Appendix A** provides figures that illustrate the household growth, employment growth, existing and forecasted daily traffic volumes, and constraints data used for the prioritization analysis.

Table 1: Prioritization Scoring Approach

Range	Tier	Points	Range	Tier	Points
Household Growth			Job Growth		
Increase of 25 HH's or Fewer	Low	0	Increase of 50 Jobs or Fewer	Low	0
Increase of 26 - 50	Medium-Low	1	Increase of 51 - 100	Medium-Low	1
Increase of 51 - 100	Medium	2	Increase of 101 - 500	Medium	2
Increase of 101 - 150	Medium-High	3	Increase of 501 - 1,000	Medium-High	3
Increase of 151 or More	High	4	Increase of 1,000 or More	High	4
Existing Volume			Future Volume		
Less than 1,000 ADT	Low	0	Less than 1,000 ADT	Low	0
1,000 - 5,000 ADT	Medium-Low	1	1,000 - 5,000 ADT	Medium-Low	1
5,000 - 10,000 ADT	Medium	2	5,000 - 10,000 ADT	Medium	2
10,000 - 20,000 ADT	Medium-High	3	10,000 - 20,000 ADT	Medium-High	3
20,000 or More ADT	High	4	20,000 or More ADT	High	4
Topography Constraint			Alignment Constraint		
Yes	Low	-1	Yes	Low	-1
No	High	0	No	High	0

Prioritized Roadway Segments

Staff of the MPO and local jurisdictions provided a list of key MSP roadway segments to be prioritized. This list comprised 26 segments within the MPO Area; **Table 2** summarizes the MPO- and local jurisdiction-identified segments that formed the basis of the prioritization analysis.

Table 2: MPO- and Local Jurisdiction-Identified MSP Segments

Roadway	Extent
E Anamosa Street	Elk Vale Road to Reservoir Road
Black Hills Boulevard	Catron Boulevard to Upper Spring Creek Road
Bunker Drive	Alma Street to Country Road W
Creek Drive	Marlin Drive to Old Folsom Road
Degeest Drive	E Anamosa Street to Cheyenne Boulevard
E-W Arterial S of Addison Avenue	HWY 16 to Black Hills Boulevard Extension
E Fairmont Boulevard	Cambell Street to Elk Vale Road
Krebs Drive	Commerce Road to Deadwood Avenue N
N Lacrosse Street	Seeger Drive to Country Road
Les Hollers Way	Sheridan Lake Road to Catron Boulevard
E Minnesota Street	Cambell Street to S Valley Drive
Neel Street	E Anamosa Street to E Philadelphia Street
Neva Way	N Haines Avenue to N Lacrosse Street
N-S Collector	E of Tartan Court
Nugget Gulch Road	Moon Meadows Drive to Motherlode Drive
E Philadelphia Street	N Valley Drive to Reservoir Road
Turbine Drive	E Anamosa Street to Eglin Street
Falling Rock Road	Southern Terminus to Victoria Lake Road
Nameless Cave Road	Northern Terminus to Schroeder Road
Hidden Valley Road	Western Terminus to Bittersweet Road
Sun Ridge Road	Western Terminus to Bittersweet Road
E Anamosa Street	I-190 to Commerce Road
Twilight Drive	Eastern Terminus to Hidden Springs Road
Haugo Drive	Catron Boulevard to Moon Meadows Drive
Villaggio Lane	Southern Terminus to Horsecreek Drive
Promise Road/Healing Way Extension	U.S. 16 to U.S. 16B

In addition to the segments identified for prioritization by MPO and local jurisdiction staff, several segments were identified for exclusion. These segments and the reasoning behind their exclusion are presented in **Table 3**.

Table 3: MSP Segments Excluded from the Prioritization Analysis

Roadway	Extent	Reason
Healing Way	Moon Meadows Drive to Addison Avenue	Road profile already established
E Anamosa Street	Hogback	Beyond planning horizon
Plaza Boulevard	North of E Anamosa Street	Connects to Anamosa and is highly dependent on development
Sheridan Lake Road	W Main Street to Deadwood Avenue N	Existing development precludes route
Proposed streets through Lien quarry	Various Locations	Beyond planning horizon
N Saint Onge Street	W Chicago Street to Deadwood Avenue N	Road profile already established
Jackson Boulevard	W Main Street to W Omaha Street	Existing development precludes route
E Anamosa Street	North Street to Elk Vale Road	Road profile already established
N Neel Street	Sweetbriar Street to E Anamosa Street	Developer-led
Reservoir Road	Homestead Street to E Anamosa Street	In area development plans
E Minnesota Street	Vinecliff Drive to Jolly Lane	Road profile already established
E Enchanted Pines Drive	5 th Street to Parkview Drive	City to establish road profile
N Valley Drive	Homestead Street to E North Street	Developer-led
N Degeest Drive / Hotel Way	North of Cheyenne Boulevard	Box Elder is building this segment
Century Road	E North Street to E Anamosa Street	Road profile already established

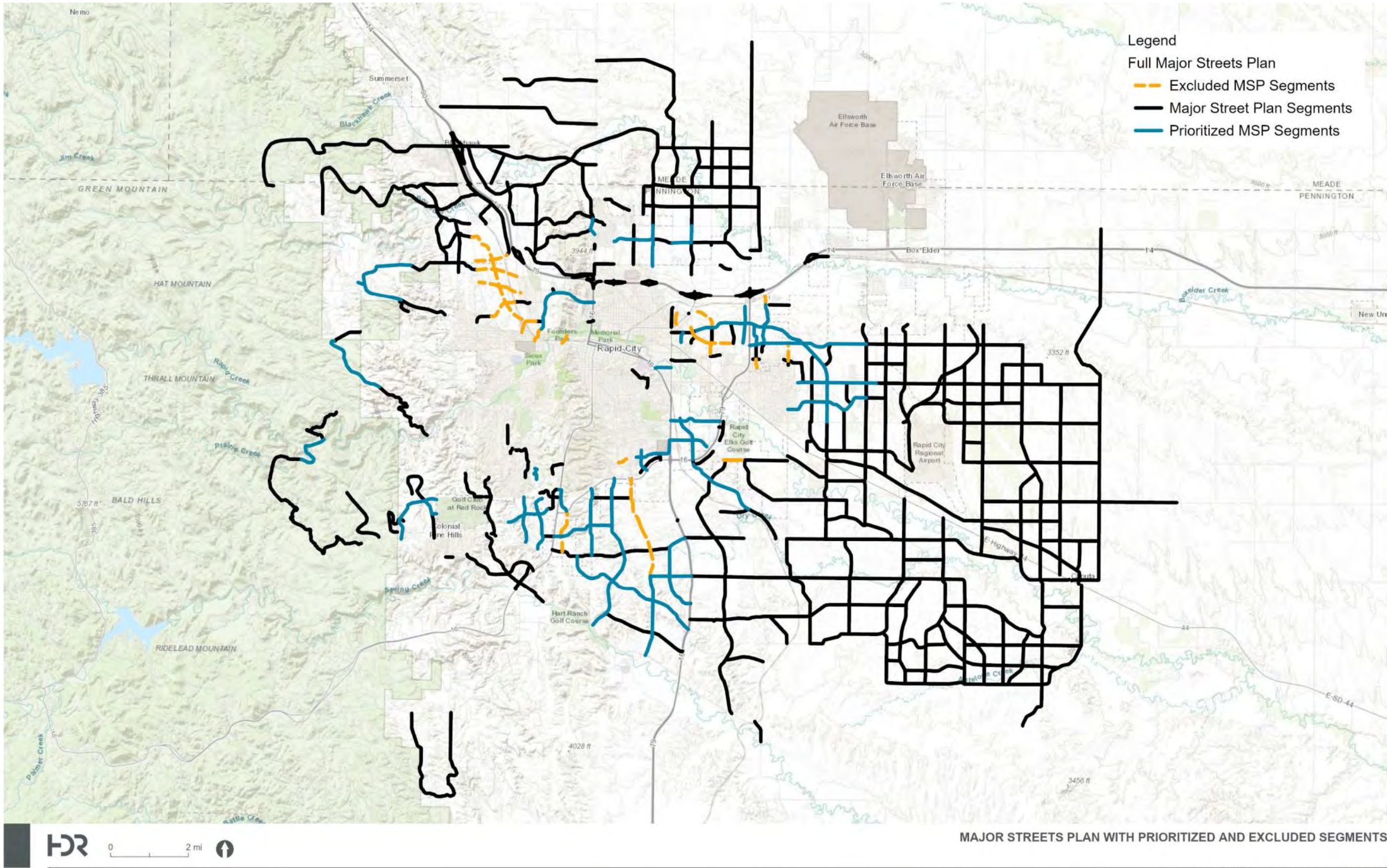
An additional 14 segments were identified for prioritization based by evaluating those that are located within high household and employment growth areas. These segments were then prioritized based on the methodology described above. **Table 4** presents these additional segments.

Table 4: Additional Prioritized MSP Segments

Roadway	Extent
Bethpage Drive	Western Terminus to Sheridan Lake Road
Muirfield Drive	Western Terminus to Bethpage Drive
E Saint James Street	Western Terminus to E Saint Joseph Street
Dreamscape Road	Sammis Trail to U.S. 16
Southern Collector	U.S. 16 to Upper Spring Creek Road
Southern Collector Loop	Lamb Road to U.S. 16 north of Black Gap Road
Mercury Drive	Stellar Drive to Radar Hill Road
E Anamosa Street Extension	Reservoir Road to Radar Hill Road
Anderson Road	Long View Road to the E Anamosa Street Extension
Neva Way	143rd Avenue to Country Road
Elm Avenue	U.S. 16 to Field View Drive
E Enchanted Pines Drive	Gemstone Drive to E Minnesota Street
Creek Drive	U.S. 16 to Southern Terminus
Creek Drive	Northern Terminus to E Philadelphia Street

Figure 2 illustrates the current MSP, along with the segments that were identified for prioritization as well those identified for exclusion.

Figure 2: MSP with Prioritized and Excluded Segments



Prioritization Results

This section of the memorandum provides an overview of the prioritization analysis results for the 40 MSP segments listed in **Tables 2** and **4**. The discussion of the results will focus on quadrants of the Rapid City Area MPO, defined as:

- **Northern Growth Area:** MPO Area north of I-90
- **Southern Growth Area:** MPO Area south of E Fairmont Boulevard, between Sheridan Lake Road and Highway 44
- **Western Growth Area:** MPO Area south of I-90 and west of Mount Rushmore Road
- **Eastern Growth Area:** MPO Area north of Highway 44 and east of Campbell Street

This section of the memorandum concludes with a summary of the full prioritization analysis for the MPO Area.

Northern Growth Area

The Northern Growth Area, defined as the MPO Area north of I-90, had four MSP segments included in the prioritization analysis. The four MSP segments prioritized were:

- Bunker Drive, from Alma Street to County Road W (ID 3)
- N Lacrosse Street, from Seger Drive to Country Road (ID 9)
- Neva Way, from N Haines Avenue to N Lacrosse Street (ID 14)
- Neva Way, from 143rd Avenue to County Road (ID 36)

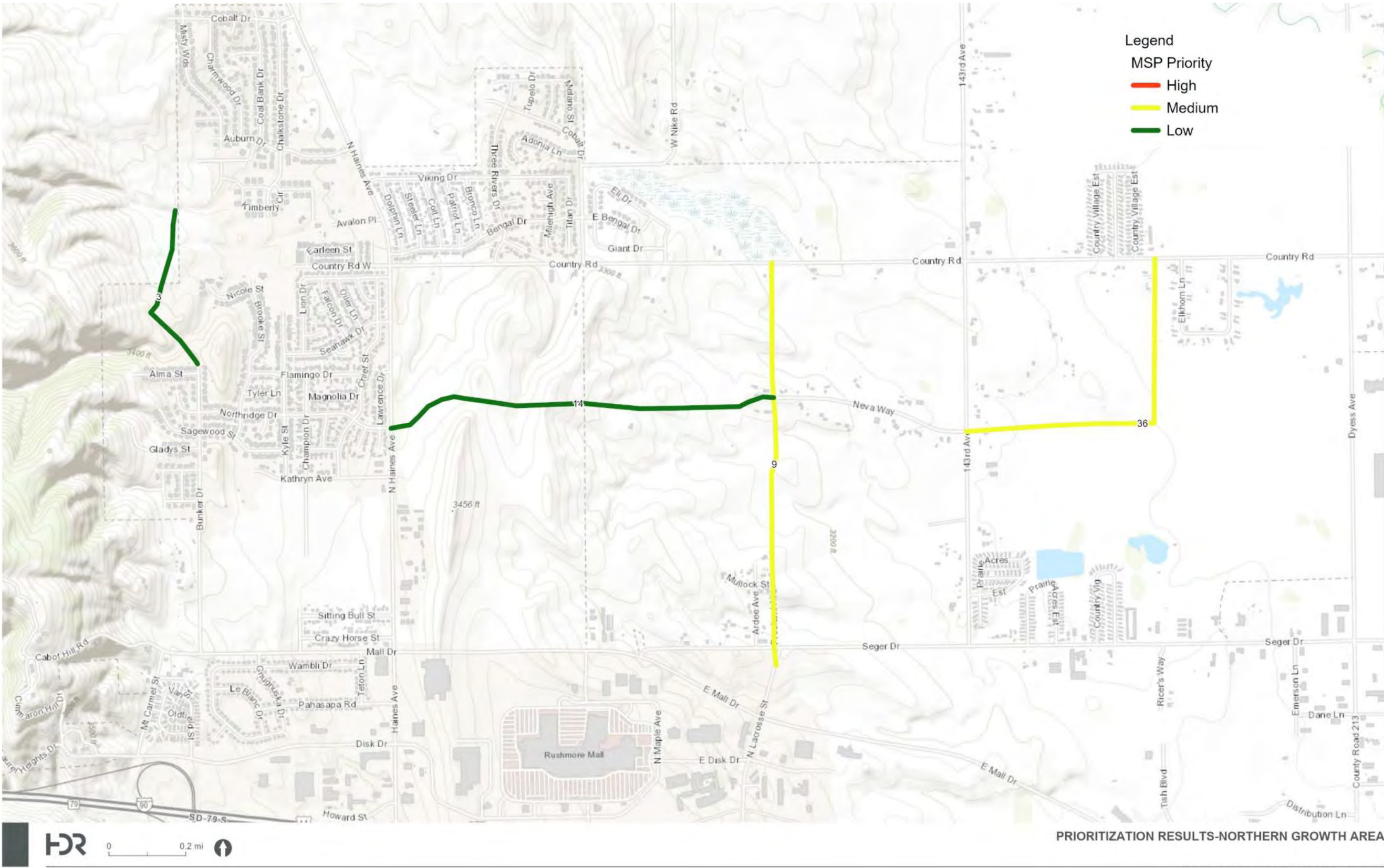
Figure 3 shows the priority level resulting from the analysis for the Northern Area Growth segments. As seen in **Figure 3**, the N Lacrosse Street and Neva Way from 143rd Avenue to Country Road segments recorded a “Medium” priority level while the Bunker Hill and Neva Way from N Haines Avenue to N Lacrosse Street segments recorded a “Low” priority.

The main factors influencing the prioritization scores in this area relate to the forecasted household and employment growth anticipated for this part of the MPO Area. While the Bunker Drive, Lacrosse Street, and eastern Neva Way segments are located in high household growth areas, the forecasted employment growth is relatively low. Similarly, the western Neva Way segment is located in an area expected to have both moderate household and employment growth.

Existing traffic volumes in this area are also relatively low, which influenced low scores for all four segments. Traffic volume forecasts for this area anticipate a relatively low increase by 2045, which also resulted in relatively low scores for this prioritization metric. Several of the segments, namely Bunker Hill Drive and the western Neva Way segment were identified as demonstrating topography and alignment constraints, which further reduced the prioritization scores for these segments.

While there is a need to address the high levels of future household and employment growth anticipated for this area, the relatively low growth in traffic volumes paired with the topographical constraints found in this part of the MPO Area see the need to construct these segments as being a lower priority for the MPO and local jurisdictions.

Figure 3: Prioritization Results for the Northern Growth Area



Southern Growth Area

The Southern Growth Area, defined as the MPO Area south of E Fairmont Boulevard between Sheridan Lake Road and Highway 44, had the highest number of MSP segments included in the prioritization analysis with 17. The MSP segments prioritized in this area were:

- Black Hills Boulevard, from Catron Boulevard to Upper Spring Creek Road (ID 2)
- Creek Drive, from Marlin Drive to Old Folsom Road (ID 4)
- E-W Arterial south of Addison Avenue, from Highway 16 to Black Hills Boulevard Extension (ID 6)
- E Fairmont Boulevard, from Campbell Street to Elk Vale Road (ID 7)
- Les Hollers Way, from Sheridan Lake Road to Catron Boulevard (ID 10)
- E Minnesota Street, from Campbell Street to S Valley Drive (ID 11)
- North-South Collector, east of Tartan Court (ID 12)
- Nugget Gulch Road, from Moon Meadows Drive to Motherlode Drive (ID 15)
- Haugo Drive, from Catron Boulevard to Moon Meadows Drive (ID 24)
- Villaggio Lane, from Southern Terminus to Horsecreek Drive (ID 25)
- Promise Road/Healing Way Extension, from U.S. 16 to U.S. 16B (ID 26)
- Dreamscape Road, from Sammis Trail to U.S. 16 (ID 30)
- Southern Collector, from U.S. 16 to Upper Spring Creek Road (ID 31)
- Southern Collector Loop, from Lamb Road to U.S. 16 north of Black Gap Road (ID 32)
- Elm Avenue, from U.S. 16 to Field View Drive (ID 37)
- Enchanted Pines Drive, from Gemstone Drive to E Minnesota Street (ID 38)
- Creek Drive, from U.S. 16 to Southern Terminus (ID 39)

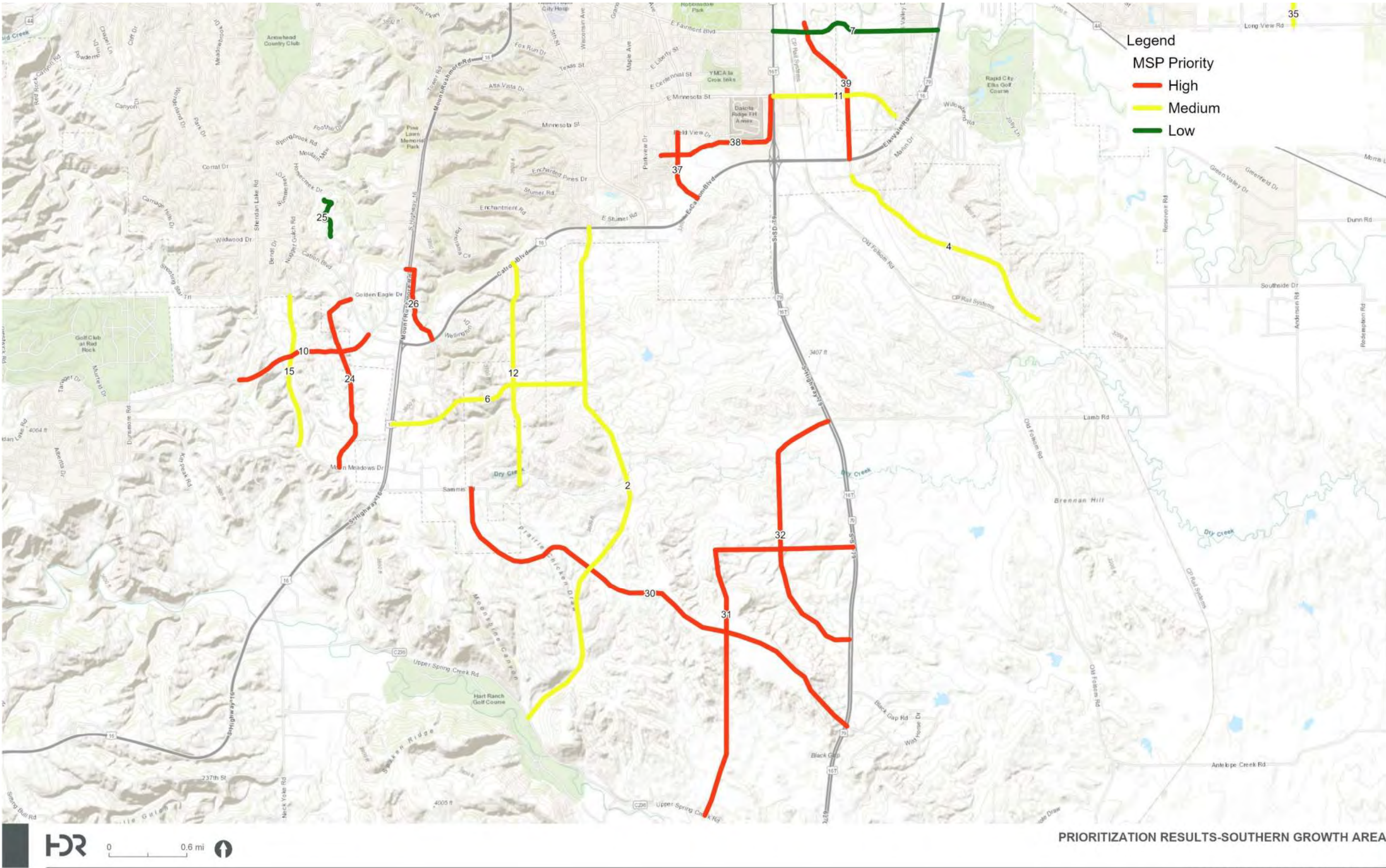
Figure 4 shows the priority level resulting from the analysis for the Southern Growth Area segments. As seen in **Figure 4**, most of the segments received a “High” priority score, while several were assessed as a “Medium” priority and two received a “Low” priority score.

The resulting “High” priority scores for the segments found in the Southern Growth Area are mainly due to the high household and employment growth anticipated to occur in this part of the MPO Area. It is noted that the main Transportation Analysis Zone (TAZ) used to forecast household and employment growth in the Southern Growth Area covers a relatively large area, which can lead to inaccuracy when estimating exact locations of where future growth is anticipated to occur. Future study of this area could benefit from the disaggregation of the TAZ into several sub-areas to allow for more detailed growth analysis. In addition to the high household and employment growth, many of these segments connect corridors that demonstrate high daily traffic levels today or are forecasted to carry relatively high levels of daily traffic by 2045.

The segments identified as “Medium” priority received lower scores due to topographical and/or alignment constraints identified along them. Three segments were also seen to connect corridors with low existing and forecasted future daily traffic volumes.

The two segments receiving a “Low” priority score, Villaggio Lane and E Fairmont Boulevard, are found in areas with lower household and employment growth forecasts as well as lower existing and forecasted future daily traffic volumes. The E Fairmont Boulevard segment was also identified as having a topographical constraint impacting its current alignment.

Figure 4: Prioritization Results for the Southern Growth Area



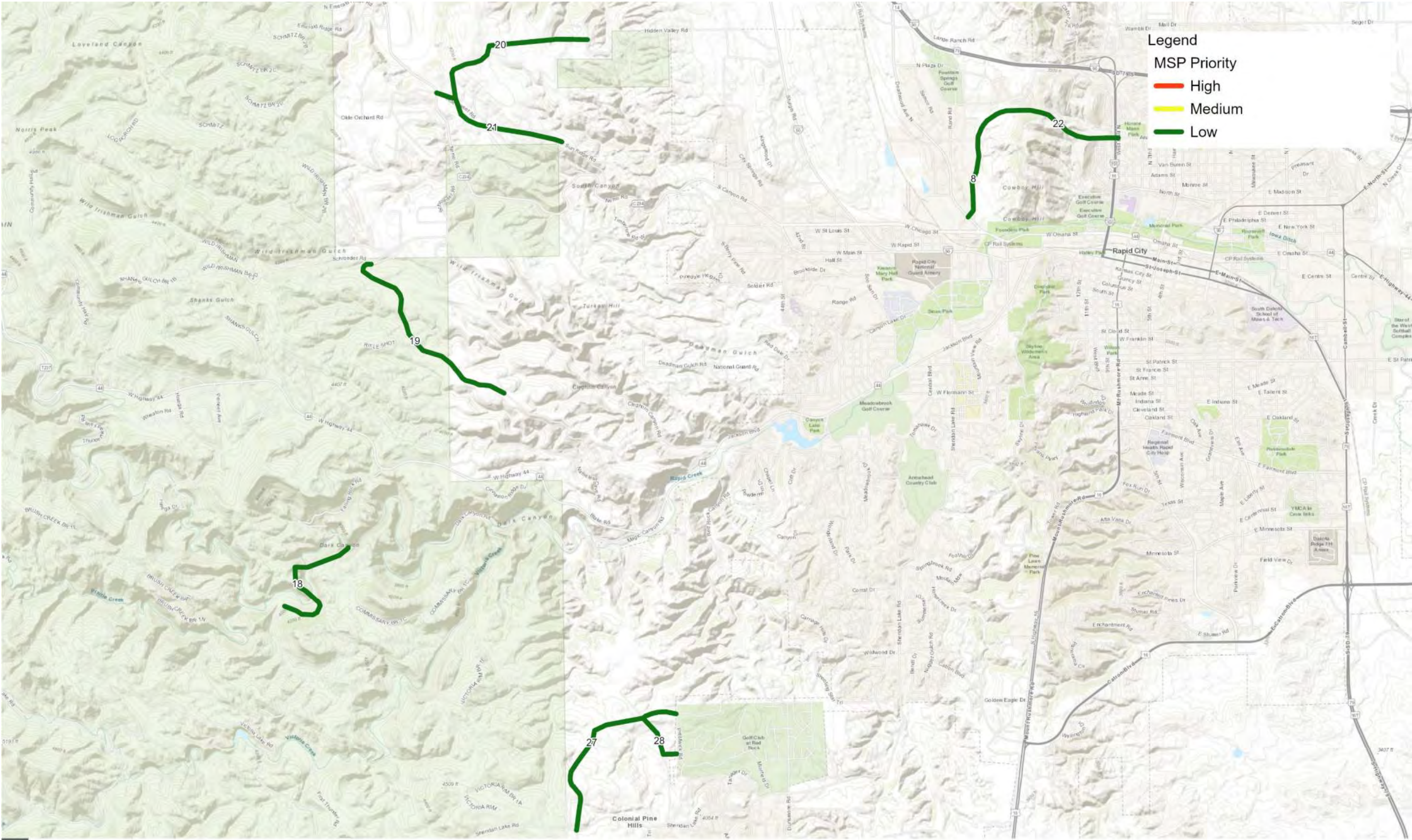
Western Growth Area

The Western Growth Area, defined as the MPO Area south of I-90 and west of Mount Rushmore Road, had eight MSP segments included in the prioritization analysis. The eight MSP segments prioritized were:

- Krebs Drive, from Commerce Road to Deadwood Avenue N (ID 8)
- Falling Rock Road, from Southern Terminus to Victoria Lake Road (ID 18)
- Nameless Cave Road, from Northern Terminus to Schroeder Road (ID 19)
- Hidden Valley Road, from Western Terminus to Bittersweet Road (ID 20)
- Sun Ridge Road, from Western Terminus to Bittersweet Road (ID 21)
- Anamosa Street, from I-190 to Commerce Road (ID 22)
- Bethpage Drive, from Western Terminus to Sheridan Lake Road (ID 27)
- Muirfield Drive, from Western Terminus to Bethpage Drive (ID 28)

Figure 5 shows the priority level resulting from the analysis for the Western Growth Area segments. All MSP segments found within the Western Growth Area received a “Low” priority score mainly due to the limited forecasted growth in households and employment through 2045. As household and employment growth is closely related to travel demand, it was seen that existing traffic volumes are expected to see limited growth through the year 2045, thus resulting in low scores for this prioritization element. Adding to the lower priority score results is the presence of topographical and alignment constraints impacting several of the segments, including Falling Rock Road, Hidden Valley Road, and Anamosa Street.

Figure 5: Prioritization Results for the Western Growth Area



PRIORITIZATION RESULTS-WESTERN GROWTH AREA

MAJOR STREET PLAN ANALYSIS & UPDATE

Eastern Growth Area

The Eastern Growth Area, defined as the MPO Area north of Highway 44 and east of E Saint Joseph Street, had 11 MSP segments included in the prioritization analysis. The 11 MSP segments prioritized were:

- E Anamosa Street, from Elk Vale Road to Reservoir Road (ID 1)
- Degeest Drive, from E Anamosa Street to Cheyenne Boulevard (ID 5)
- Neel Street, from E Anamosa Street to E Philadelphia Street (ID 13)
- E Philadelphia Street, from N Valley Drive to Reservoir Road (ID 16)
- Turbine Drive, from E Anamosa Street to Eglin Street (ID 17)
- Twilight Drive, from Eastern Terminus to Hidden Springs Road (ID 23)
- E Saint James Street, from Western Terminus to E Saint Joseph Street (ID 29)
- Mercury Drive, from Stellar Drive to Radar Hill Road (ID 33)
- E Anamosa Street Extension, from Reservoir Road to Radar Hill Road (ID 34)
- Anderson Road, from Long View Road to the E Anamosa Street Extension (ID 35)
- Creek Drive, from the Northern Terminus to E Philadelphia Street (ID 40)

Figure 6 shows the priority level resulting from the analysis for the Eastern Growth Area segments. As seen in **Figure 6**, the segments within the Eastern Growth Area received a range of priority scores, with two segments registering a “High” priority score, seven receiving a “Medium” priority score, and two receiving a “Low” priority score.

The Eastern Growth Area is expected to see substantial household and employment growth through 2045, which resulted in the segments located here receiving relatively high prioritization scores for those two metrics. However, low existing daily traffic volumes and moderate growth in traffic forecasts indicate that these segments are not likely to provide connections between the MPO Areas highest traveled future corridors through 2045. In terms of constraints, only the E Philadelphia Street and Turbine Drive segments demonstrated any type of constraint related to their alignments.

The resulting prioritization scores for all 40 corridors analyzed are shown in **Figure 7** while **Table 5** summarizes the individual scores for each segment.

Figure 6: Prioritization Results for the Eastern Growth Area

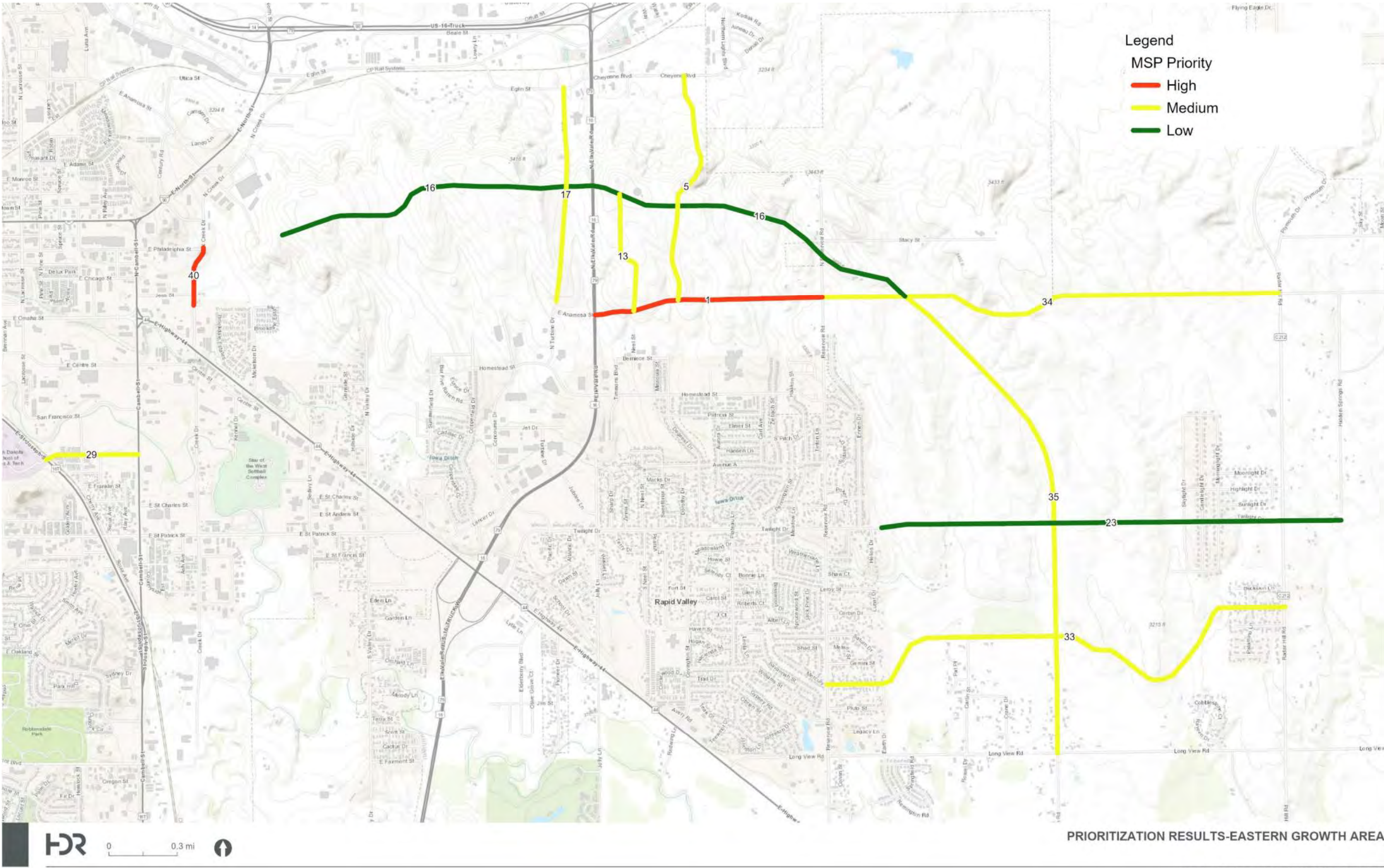


Figure 7: Prioritization Results

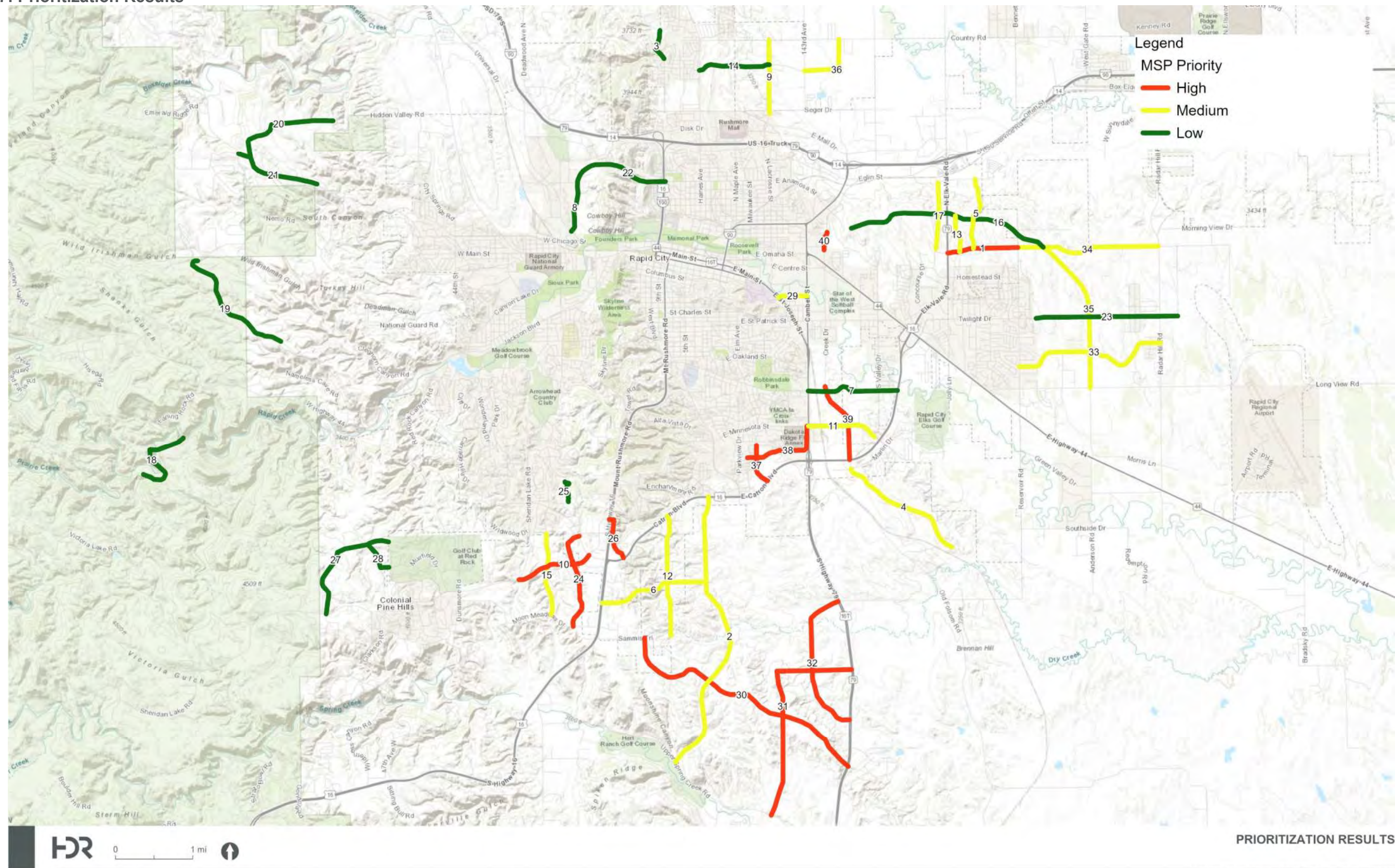


Table 5: Prioritization Analysis Results

ID	Road Name	Extent	Household Growth	Job Growth	RC Airport RPZ	EAFB APZ	Existing ADT	Forecasted ADT	Topography Constraint	Alignment Constraint	Prioritization Score	Priority
26	Promise Road/Healing Way Extension	U.S. 16 to U.S. 16b	4	2	0	0	2	4	0	0	100	High
24	Haugo Drive	Catron Boulevard to Moon Meadows Drive	4	4	0	0	0	3	0	0	92	High
37	Elm Avenue	U.S. 16 to Field View Drive	4	3	0	0	3	2	-1	0	92	High
39	Creek Drive	U.S. 16 to Southern Terminus	4	2	0	0	2	3	0	0	92	High
10	Les Hollers Way	Sheridan Lake Road to Catron Boulevard	4	4	0	0	0	3	-1	0	83	High
30	Dreamscape Road	Sammis Trail to U.S. 16	4	4	0	0	0	2	0	0	83	High
32	Southern Collector Loop	Lamb Road to U.S. 16 north of Black Gap Road	4	4	0	0	0	2	0	0	83	High
40	Creek Drive	Northern Terminus to E Philadelphia Street	4	3	0	0	0	3	0	0	83	High
1	E Anamosa Street	Elk Vale Road to Reservoir Road	4	2	0	0	0	3	0	0	75	High
31	Southern Collector	U.S. 16 to Upper Spring Creek Road	4	4	0	0	1	1	-1	0	75	High
38	E Enchanted Pines Drive	Gemstone Drive to E Minnesota Street	4	3	0	0	0	2	0	0	75	High
6	E-W Arterial S of Addison Avenue	HWY 16 to Black Hills Boulevard Extension	4	4	0	0	0	1	-1	0	67	Medium
11	E Minnesota Street	Cambell Street to S Valley Drive	4	2	0	0	0	2	0	0	67	Medium
34	E Anamosa Street Extension	Reservoir Road to Radar Hill Road	4	2	0	0	1	1	0	0	67	Medium
35	Anderson Road	Long View Road to the E Anamosa Street Extension	4	2	0	0	0	2	0	0	67	Medium
2	Black Hills Blvd	Catron Boulevard to Upper Spring Creek Road	4	4	0	0	0	0	-1	0	58	Medium
4	Creek Drive	Marlin Drive to Old Folsom Road	4	3	0	0	0	0	0	0	58	Medium
5	Degeest Drive	E Anamosa Street to Cheyenne Boulevard	4	2	0	0	0	1	0	0	58	Medium
13	Neel Street	E Anamosa Street to E Philadelphia Street	4	2	0	0	0	1	0	0	58	Medium
15	Nugget Gulch Road	Moon Meadows Drive to Motherlode Drive	4	4	0	0	0	0	-1	0	58	Medium
29	E Saint James Street	Western Terminus to E Saint Joseph Street	0	0	0	0	3	4	0	0	58	Medium



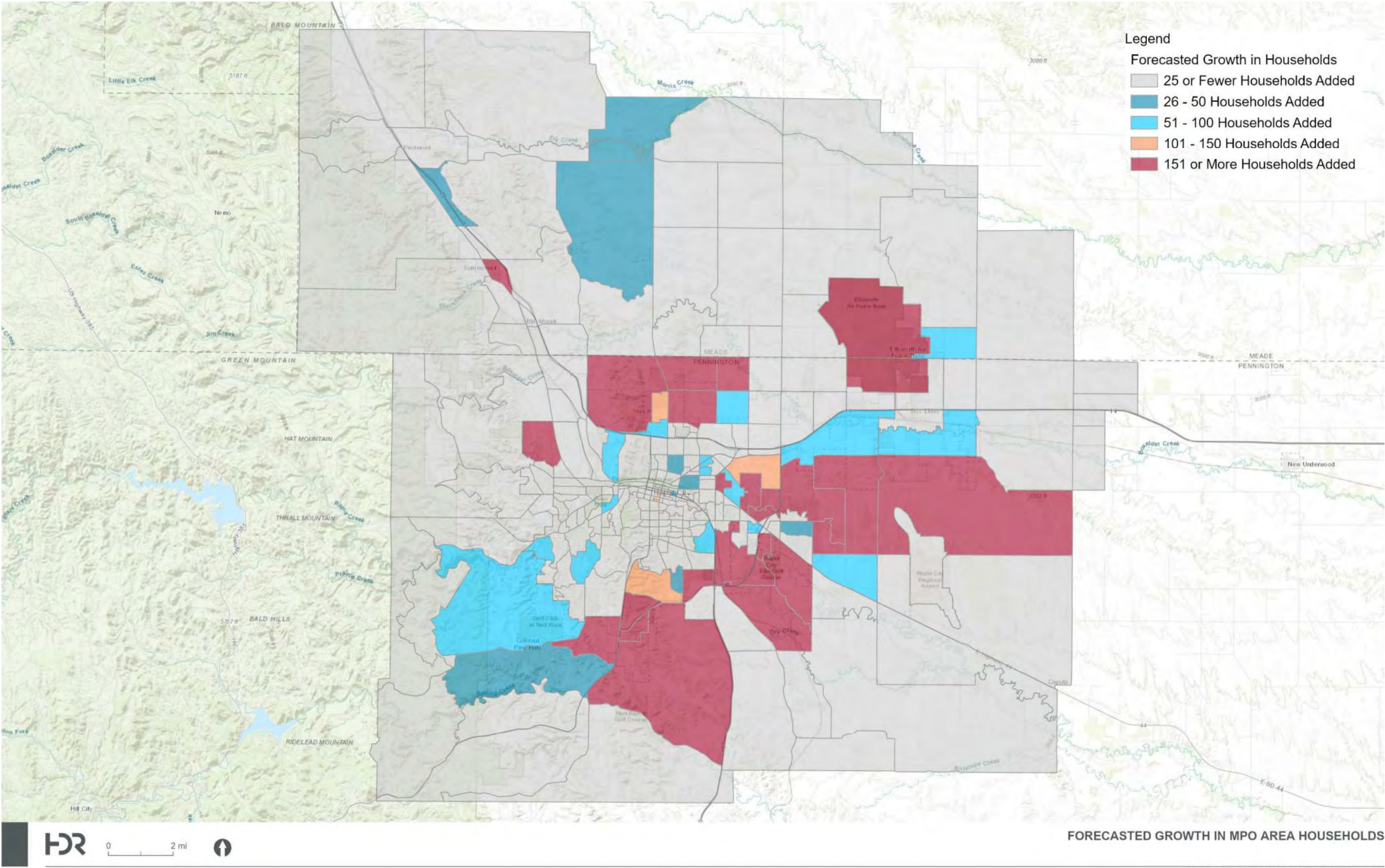
Table 5 continued

ID	Road Name	Extent	Household Growth	Job Growth	RC Airport RPZ	EAFB APZ	Existing ADT	Forecasted ADT	Topography Constraint	Alignment Constraint	Prioritization Score	Priority
33	Mercury Drive	Stellar Drive to Radar Hill Road	4	2	0	0	0	1	0	0	58	Medium
9	N Lacrosse Street	Seeger Drive to Country Road	4	1	0	0	0	1	0	0	50	Medium
12	N-S Collector	E of Tartan Court	4	4	0	0	0	0	-1	-1	50	Medium
17	Turbine Drive	E Anamosa Street to Eglin Street	3	3	0	0	0	0	0	0	50	Medium
36	Neva Way	143rd Avenue to Country Road	2	2	0	0	1	1	0	0	50	Medium
7	E Fairmont Boulevard	Cambell Street to Elk Vale Road	4	2	0	0	0	0	-1	0	42	Low
14	Neva Way	N Haines Avenue to N Lacrosse Street	4	1	0	0	0	0	0	0	42	Low
16	E Philadelphia Street	N Valley Drive to Reservoir Road	3	3	0	0	0	0	-1	0	42	Low
23	Twilight Drive	Eastern Terminus to Hidden Springs Road	4	2	0	0	0	0	-1	0	42	Low
3	Bunker Drive	Alma Street to Country Road W	4	0	0	0	0	1	-1	0	33	Low
8	Krebs Drive	Commerce Road to Deadwood Avenue N	2	2	0	0	0	0	0	0	33	Low
22	E Anamosa Street	I-190 to Commerce Road	2	2	0	0	0	1	-1	0	33	Low
27	Bethpage Drive	Western Terminus to Sheridan Lake Road	2	1	0	0	0	2	0	-1	33	Low
28	Muirfield Drive	Western Terminus to Bethpage Drive	2	1	0	0	0	1	0	0	33	Low
25	Villaggio Lane	Southern Terminus to Horsecreek Drive	0	3	0	0	0	0	0	0	25	Low
19	Nameless Cave Road	Northern Terminus to Schroeder Road	0	0	0	0	0	0	0	0	0	Low
21	Sun Ridge Road	Western Terminus to Bittersweet Road	0	0	0	0	0	1	0	-1	0	Low
18	Falling Rock Road	Southern Terminus to Victoria Lake Road	0	0	0	0	0	0	-1	0	-8	Low
20	Hidden Valley Road	Western Terminus to Bittersweet Road	0	0	0	0	0	0	-1	-1	-17	Low

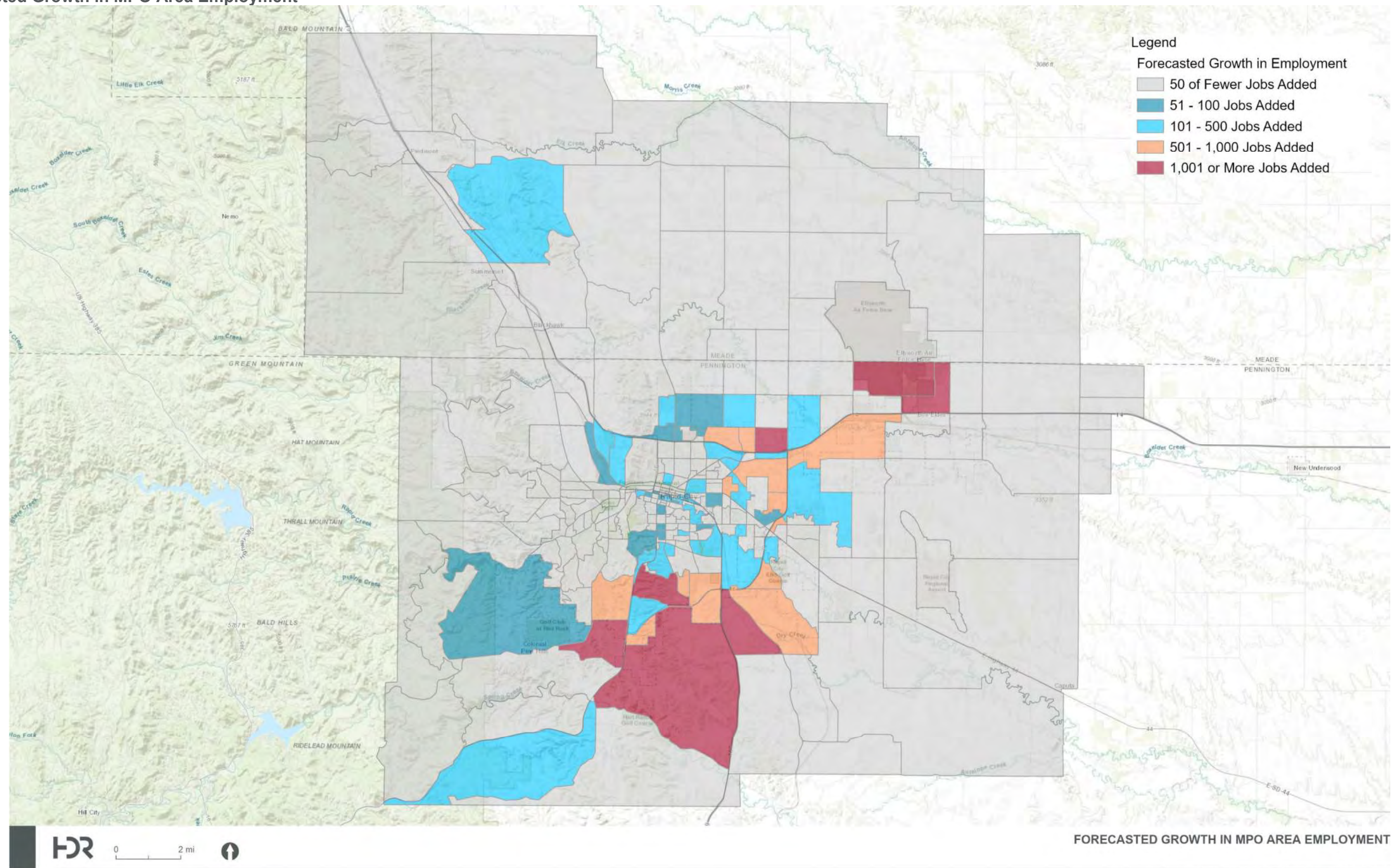
Appendix A

Prioritization Analysis Data

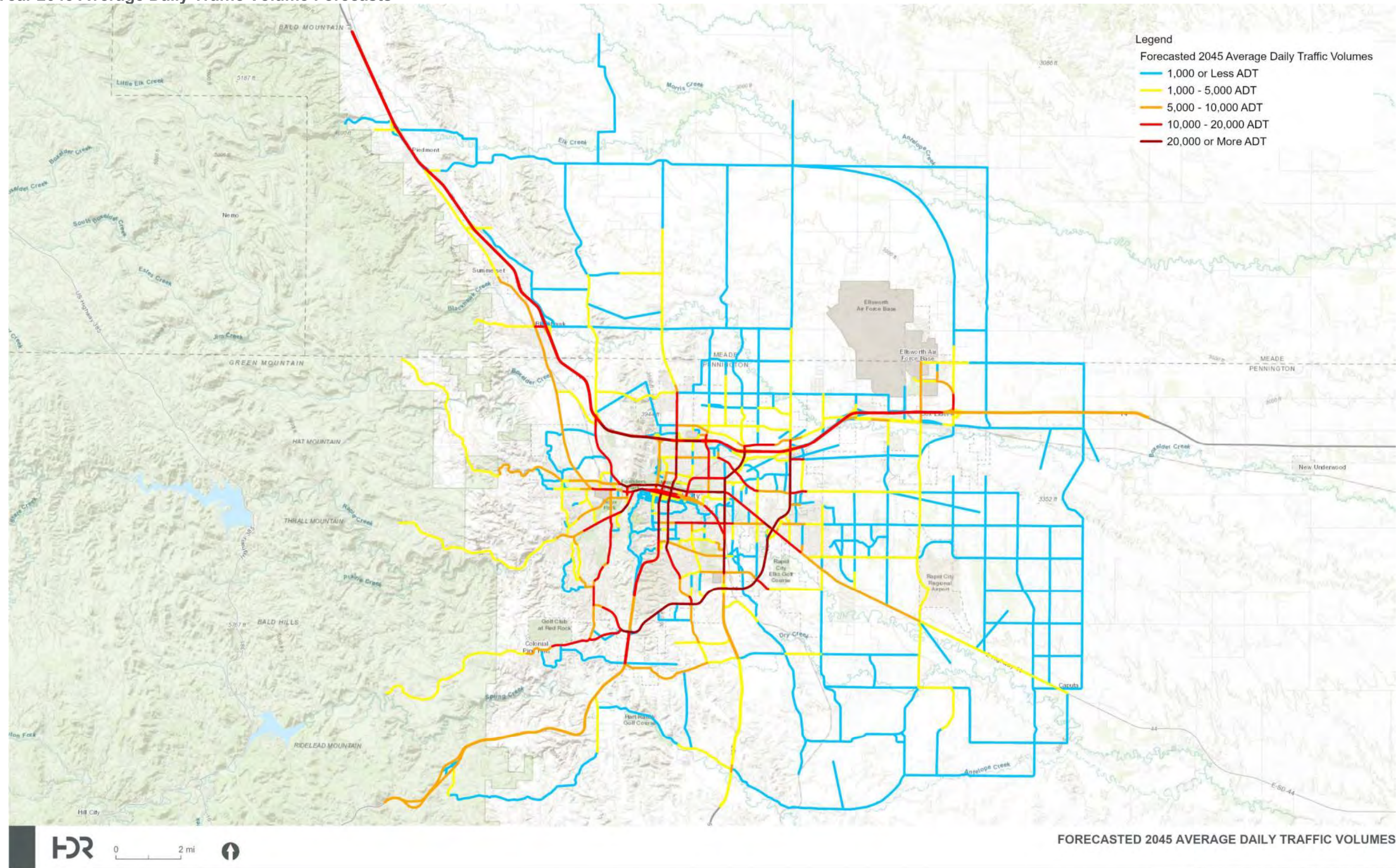
Forecasted Growth in MPO Area Households



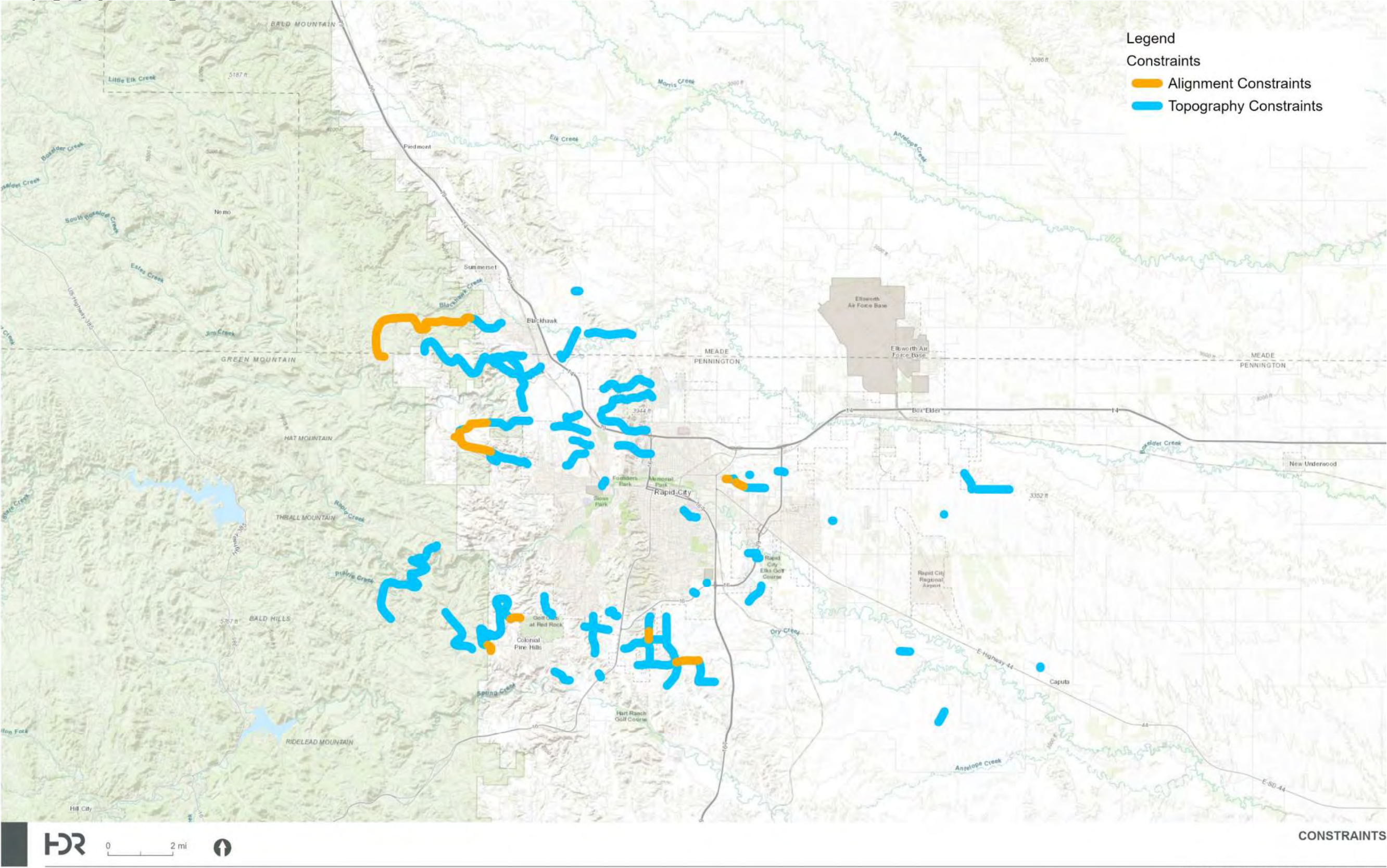
Forecasted Growth in MPO Area Employment



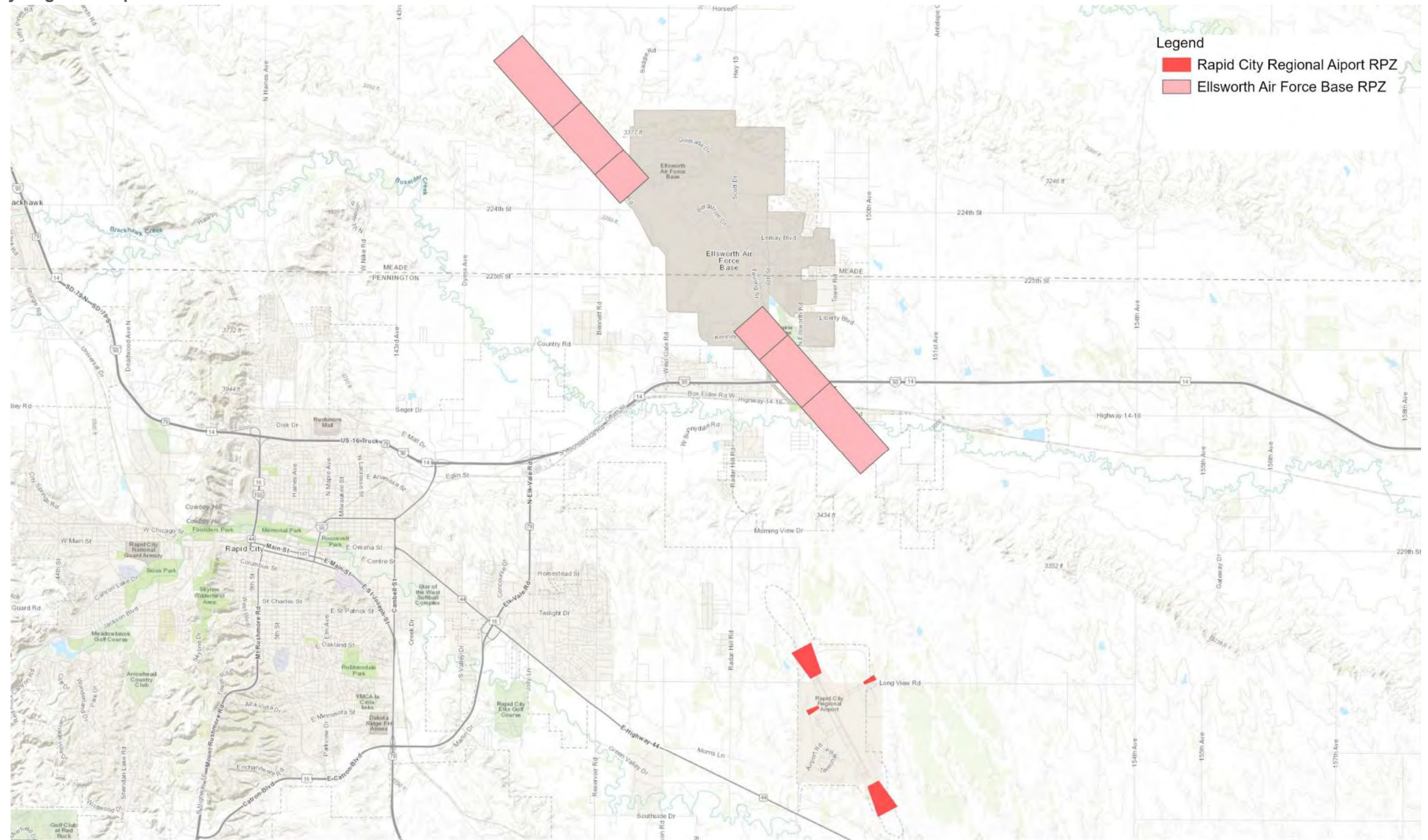
Future Year 2045 Average Daily Traffic Volume Forecasts



Identified Topography and Alignment Constraints



Rapid City Regional Airport and Ellsworth Air Force Base RPZ



RAPID CITY REGIONAL AIRPORT AND ELLSWORTH AIR FORCE BASE RPZ