Purpose and Need Memo

Date:	Monday, May 06, 2024
Project:	Rathdrum Prairie PEL Study
To:	Carrie Ann Hewitt, ITD District 1 Mike Hartz, ITD District 1
From:	HDR
Subject:	Rathdrum Prairie Planning and Environmental Linkages (PEL) Study Purpose and Need

Purpose

The purpose of the transportation recommendations are to improve safety, mobility, as well as system reliability and resiliency for the current and future movement of both people and goods as northern Kootenai County and the Rathdrum Prairie continue to see rapid growth and development.

Needs

The needs are the key problems and the causes of those problems that the Idaho Transportation Department (ITD) and Kootenai Metropolitan Planning Organization (KMPO) seek to address with transportation improvements within the Study Area.

1. Address vehicular safety concerns within high-crash corridors and intersections.
2. Address existing and future transportation system capacity constraints caused by growth.
3. Provide opportunities to increase safety, mobility, and connections for bicycles, pedestrians, and transit users.

The following sections further describe the needs listed above.

1. Address vehicular safety concerns within high-crash corridors and intersections.

Comparison to Statewide Average Crash Rates

Comparing Study Area roadway segments to the statewide average crash rates for 2017-2021 resulted in the following findings:

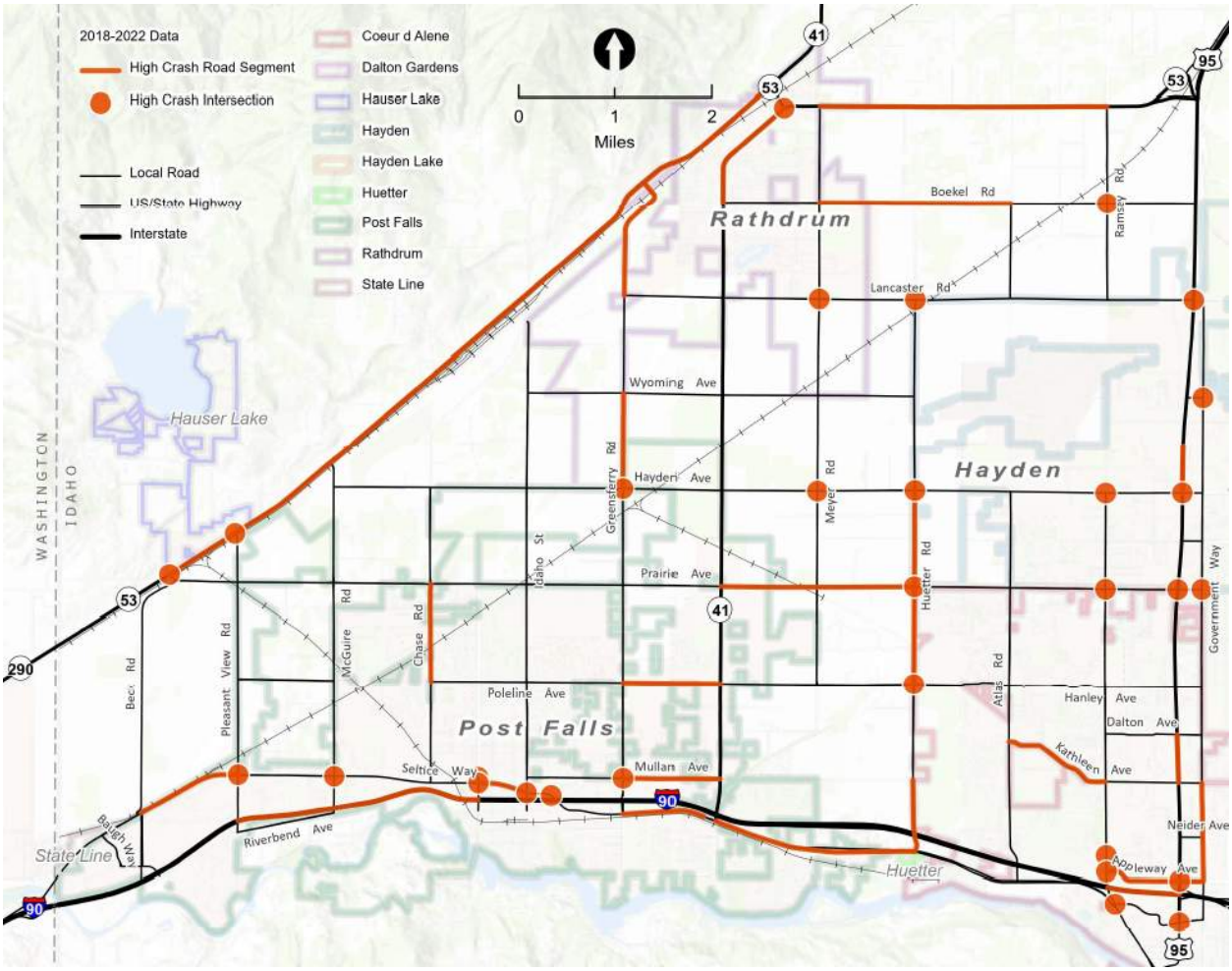
- Total crash rates for 108 segments exceeded the statewide average for their respective road classes.
- Fatal and injury crash rates for 100 segments exceeded the statewide average for their respective road classes.

- Fatal crash rates for 20 segments exceeded the statewide average for their respective road classes.

High-crash Corridors and Intersections

Thirty segments and 30 intersections were identified as high-crash locations. The methodology for determining high-crash locations is in the *Existing Conditions Technical Memorandum*. **Figure 1** illustrates high-crash locations within the Study Area.

Figure 1. High-crash Locations within the Study Area



Crash Trends

Crash trends identified within roadway segments and intersections identified as high-crash locations were specific to each location and included:

- Crashes at night
- Lane departures resulting in overturned vehicles
- Head-on crashes
- Road departure crashes
- Collisions with fixed objects, such as trees and utility/lighting supports

- Pedestrian crashes
- Crashes at driveways
- Angle crashes
- Rear-end crashes

2. Address existing and future transportation system capacity constraints caused by growth.

Interstate 90 (I-90) is the primary east-west thoroughfare that carries most traffic between the Spokane metropolitan area in Washington and the Coeur d'Alene area in Idaho. US-95 is the primary north-south thoroughfare in the Study Area and the singular north-south highway route in north Idaho. Most of the urban development in the Study Area is clustered around these two corridors. I-90 typically experiences high congestion during the AM and PM peak hours, and drivers often experience delays at the signalized intersections along US-95. Drivers familiar with the area will often take alternate routes to access areas on opposite sides of the Rathdrum Prairie area to avoid these corridors, particularly the signalized section of US-95 between Coeur d'Alene and Hayden. The methodology for determining future traffic operations is in the *Existing and Future No Build Conditions Technical Memorandum*.

Forecasted Growth

KMPO 2045 growth projections indicate that substantial growth is expected within the Study Area, as shown in **Table 1**. Additionally, based on input from the Idaho Department of Labor, KMPO forecasts that between 2019 and 2045, employment within Kootenai County will increase from 63,290 to 90,849 jobs, a 44 percent increase. This growth in population and employment will increase the travel demand within the Study Area, increasing the effects of congestion on the transportation system.

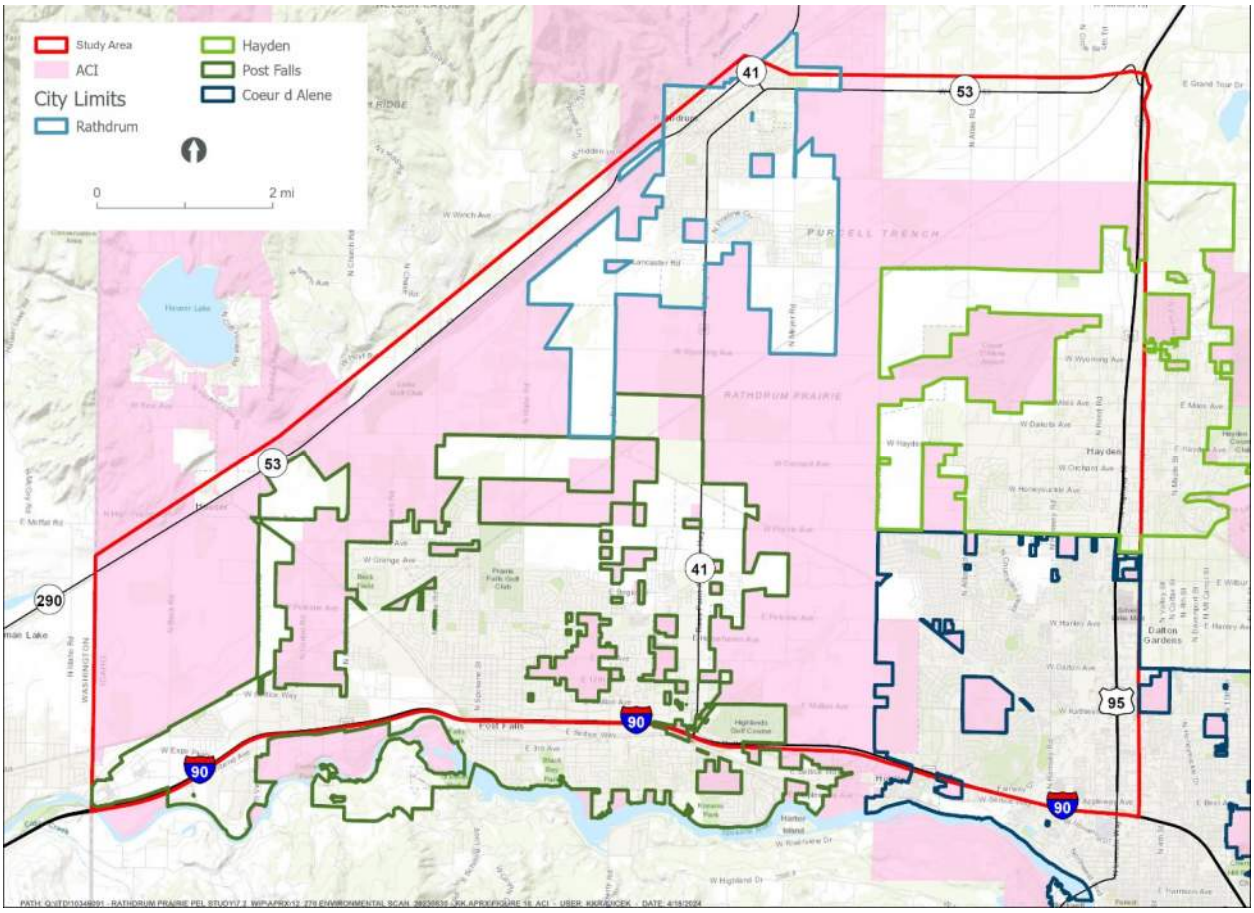
Table 1. 2020 - 2045 Future Growth Projections

Community	2020 Census Population	2045 Population Projection	Percent Change
Kootenai County	171,362	319,404	86%
Coeur d'Alene	54,628	87,872	61%
Hayden	15,570	28,655	84%
Post Falls	38,485	102,328	166%
Rathdrum	9,211	22,823	148%
State Line	39	156	300%

Source: KMPO 2020-2045 Future Growth Projections. https://www.kmpo.net/wp-content/uploads/2022/09/KMPO-Growth-Projections-2020_2045-Final-9-8-22.pdf.

Area of City Impact (ACI) is a designation to allow very limited development that ensures future city expansions can be accomplished effectively, orderly, and logically. Once annexed, consistent with the city's long-range plans, the areas within this designation are ultimately expected to be served by urban services, which will facilitate its further development, urbanization, and need for transportation services. The ACI designates areas planned for future annexation and development, as shown in **Figure 2**.

Figure 2. Area of City Impact



Congestion and Capacity

The Level of Service (LOS) for existing roadways is typically the worst, and the traffic volumes are highest during the AM and PM peak commuting hours. LOS A through F are measures of the amount of delay drivers experience at intersections and on roadway segments. LOS A represents the least delay, and F represents the worst delay. LOS D was used for the analysis as the acceptable threshold for traffic operations. LOS D represents the following average delay per vehicle at intersections:

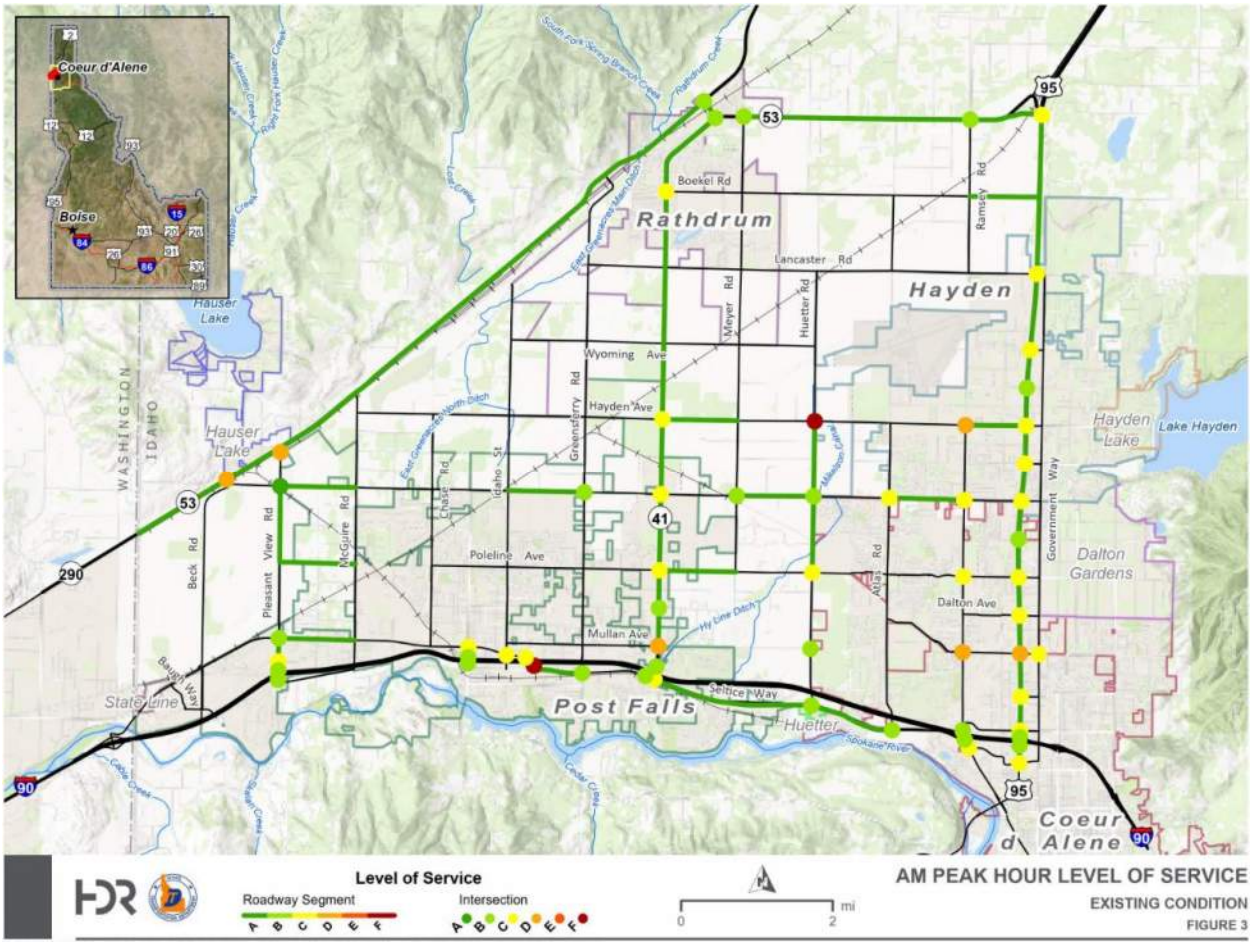
- 35-55 seconds at signalized intersections
- 25-35 seconds at unsignalized intersections

LOS D represents roadway segments with a volume (amount of traffic using the roadway) to capacity (physical space for traffic to operate on the roadway) ratio of 0.80 – 0.90, and 1.00 represents full capacity.

Existing Conditions (2023)

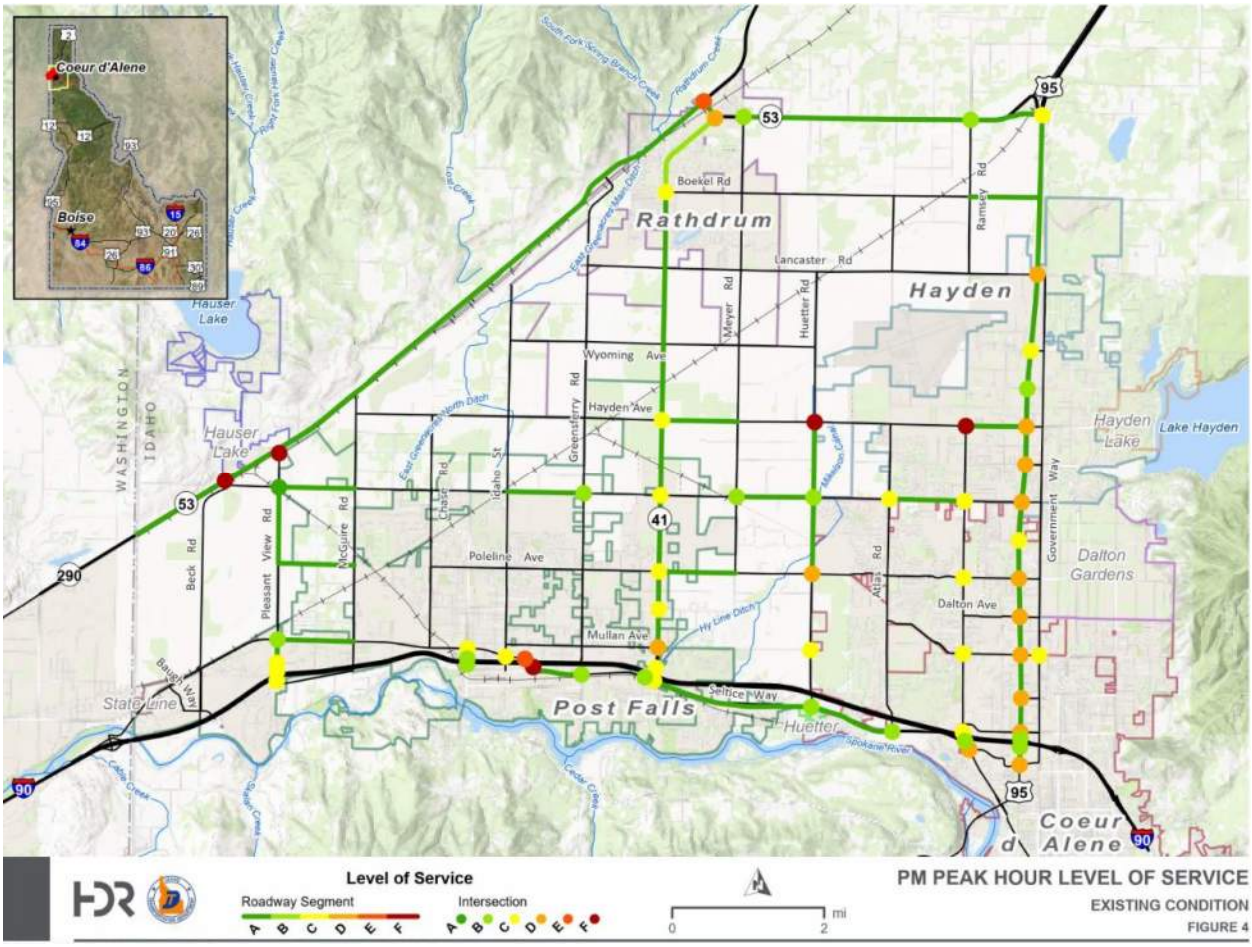
Four intersections experienced LOS E or F during the AM peak hour, as shown in **Figure 3**. Additionally, eight intersections had queues that could be expected to exceed the available turn-lane storage space or spill over into the next intersection.

Figure 3. AM Peak Hour Level of Service, Existing Conditions



Eight intersections experienced LOS E or F during the existing PM peak hour, as shown in **Figure 4.** Additionally, 23 intersections had queues that could be expected to exceed the available turn-lane storage space or spill over into the next intersection.

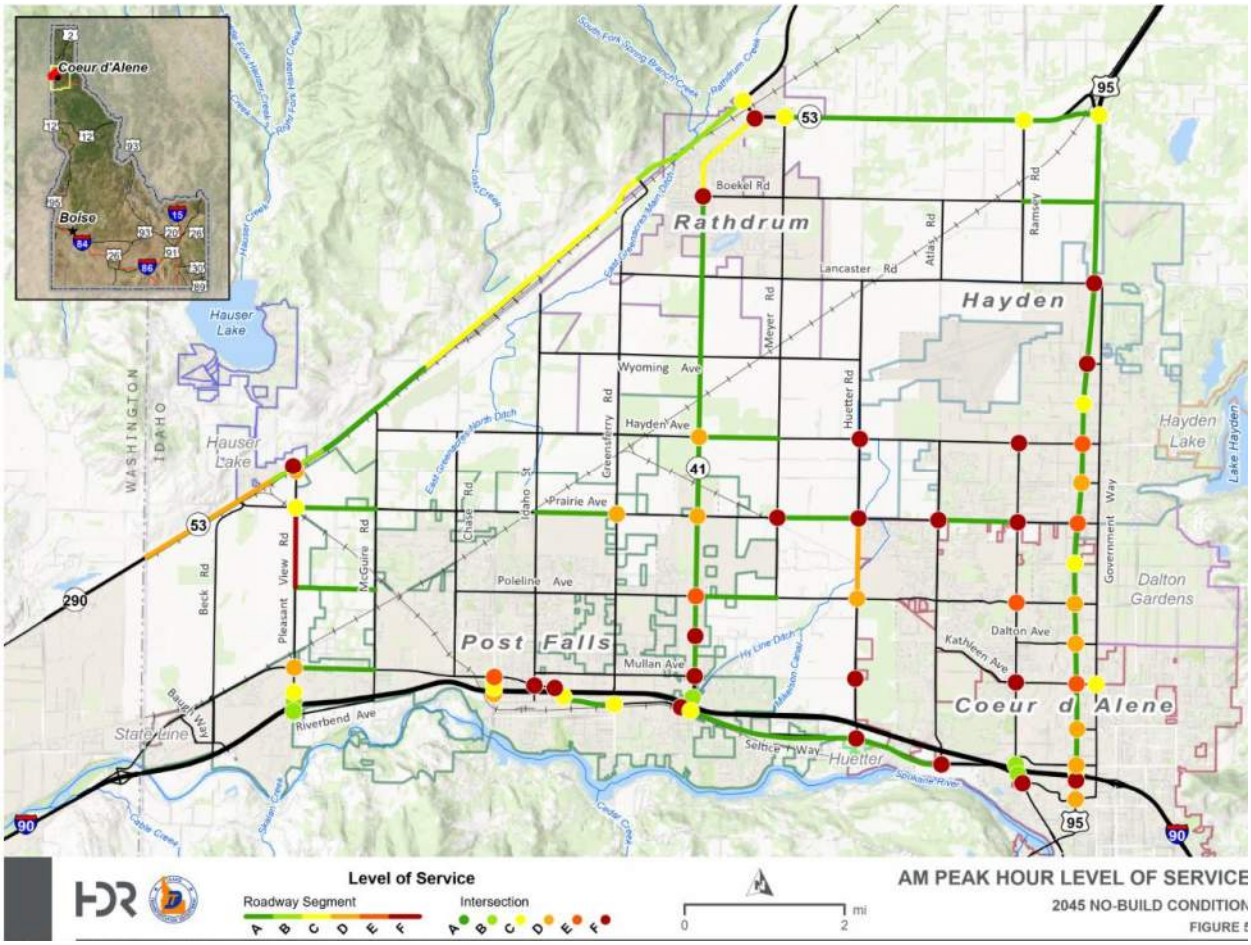
Figure 4. PM Peak Hour Level of Service, Existing Conditions



Future No-Build Conditions (2045)

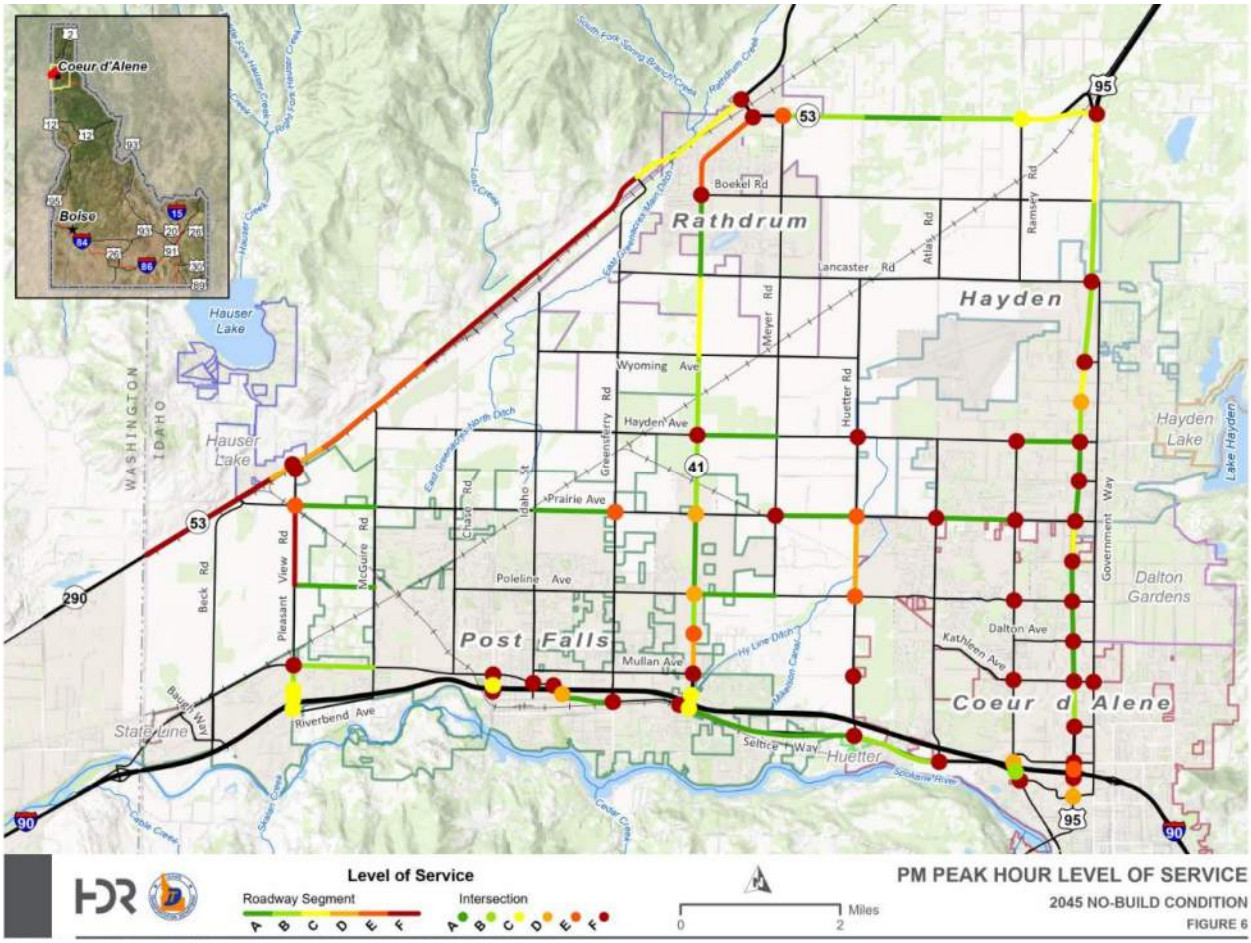
During the 2045 No-Build AM peak hour, 22 intersections and one roadway segment are projected to operate at LOS E or F, as shown in **Figure 5**. Of the 15 evaluated intersections along US-95, 10 intersections had a LOS of D. Additionally, 27 intersections are projected to have queues that could be expected to exceed the available turn-lane storage space or spill over into the next intersection.

Figure 5. AM Peak Hour Level of Service, 2045 Projections



During the 2045 No-Build PM peak hour, 38 intersections and six roadway segments are projected to experience LOS E or F, as shown in **Figure 6**. Twelve of the 35 intersections projected to experience LOS F are on US-95. Additionally, 46 intersections are projected to have queues that could be expected to exceed the available turn-lane storage space or spill over into the next intersection.

Figure 6. PM Peak Hour Level of Service, 2045 Projections



Travel Time

The increase in travel demand will affect travel time along major north-south and east-west corridors. **Table 2** compares travel time along Study Area corridors between existing 2023 delays and projected 2045 delays. Each corridor is projected to have an increased travel time, with some corridors projected to increase by over 200 and 300 percent. Northbound US-95 travel time is projected to increase by nearly 300 percent during the PM peak hour.

Table 2. Travel Time Increases, 2045 Projections

Roadway	Corridor	Direction	Existing Travel Time: AM (Minutes: Seconds)	2045 No-Build Travel Time: AM (Minutes: Seconds)	Existing Travel Time: PM (Minutes: Seconds)	2045 No-Build Travel Time: PM (Minutes: Seconds)
US-95	Lancaster Rd to Emma Ave	NB	13:21	14:57	15:37	45:53
		SB	14:15	25:16	15:04	19:47
SH-41	I-90 WB to Boekel Rd	NB	10:18	16:16	11:05	39:28
		SB	10:52	28:24	10:49	21:04
Huetter Rd	Seltice Way to Prairie Ave	NB	04:50	07:45	04:53	07:58
		SB	04:26	07:05	04:33	12:50
Pleasant View Rd	I-90 WB to SH-53	NB	05:12	08:08	05:42	14:21
		SB	04:46	06:01	04:42	07:15
Seltice Way	Pleasant View Rd to SH-41	EB	09:46	13:06	09:52	30:24
		WB	09:49	13:56	10:08	45:13
	SH-41 to Northwest Blvd	EB	07:33	16:24	07:16	08:02
		WB	07:36	10:27	07:51	31:18
Prairie Ave	Pleasant View Rd to SH-41	EB	08:12	09:19	08:09	09:36
		WB	07:59	08:52	08:05	09:05
	SH-41 to US-95	EB	09:01	25:16	09:06	15:03
		WB	08:35	09:32	09:04	21:38

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

Critical Arterial Corridors

KMPO has established Critical Arterial Corridors to protect the long-term integrity of transportation facilities that provide regional transportation access. These regionally significant arterial corridors have or are intended to be designed for higher speed (35 mph and above) facilities, where access is intentionally limited to protect and maintain the safe and efficient regional movement of people and goods.

Travel Patterns

An assessment of origins and destinations found that different types of travelers use the roadway network within the Study Area, each with different travel needs, based on where their trips begin and end. The types of trips those travelers make can be defined into three categories: Local trips within the Study Area, Study Area trips to and from Washington, and pass-through traffic where trips pass through the Study Area but begin and end outsid of it.

Freight

A transportation network's ability to move freight and goods to market is fundamental to an area's economic development. I-90, US-95, SH-41, and Prairie Ave. from US-95 to SH-41 are formally designated as National Highway System routes. The KMPO 2020 Metropolitain Transportation Plan lists W. Seltice Way, US-95, and SH-53 as regionally significant freight corridors and several other freight routes existing within the Study Area. Congestion and delay can negatively affect freight operations. US-95 is the singular north-south highway freight route in northern Idaho.

3. Provide opportunities to increase safety, mobility, and connections for bicycles, pedestrians, and transit users.

Missing Non-Motorist Connections

There is an existing network of non-motorized facilities within the urban areas of the Study Area; however, there are limited connections west of Huetter Road to developing areas, Post Falls, and Rathdrum. There are locations in the Study Area with gaps in sidewalks or the absence of sidewalks altogether, even in residential areas.

Non-Motorist Safety

Traffic congestion and speed combined with the lack of connected pedestrian and bicycle facilities create conflicts and uncomfortable conditions for pedestrians and bicyclists crossing or sharing the roadways with vehicles. From 2018 to 2022, 225 crashes involving pedestrians or bicyclists were recorded in the Study Area. This represents 2.3 percent of all crashes in the Study Area. Statewide, during the same period, 1.7 percent of all crashes involved pedestrians or bicyclists.

Transit

Kootenai Transit's A, B, and C fixed routes use the Study Area roadway system, and the reliability of those services is negatively affected by congestion. Winter weather and construction detours also affect the fixed routes. There is a lack of alternate routes to bypass incidents or congestion that reduce the consistency and reliability of the transit service.

The KMPO Regional Non-Motorized Transportation Plan (2018) notes that many transit users utilize non-motorized facilities to access transit stops. The plan highlights the lack of existing non-motorized connections to transit stops.