## SECTION 3

## Existing Conditions

The purpose of this section is to provide a general inventory of the regional transportation system, identify current deficiencies and describe the measurements used to determine system performance.

## Roadways

## Federal Functional Classification

Existing roadways are classified by how they function within an integrated network. The KMPO Board, Idaho Transportation Department (ITD), and, ultimately, the Federal Highway Administration (FHWA) formally approve an official functional classification map, which is updated approximately every 10 years. The Federal Functional Classification System (FFCS) maps were last updated March 3, 2017. Figure 3.1a shows the functional classifications of rural roadways. Figures 3.1b through 3.1e show the functional classifications within the urban area.

The functional class map defines which roadways are eligible for federal funding through the Federal-aid Highway program. In Idaho, Federal-aid funding in rural areas is limited to roadways classified as rural major collectors and higher. In urban areas, a roadway must be classified as an urban collector or higher to receive Federal-aid funding. Other local streets and private roads are not eligible for Federal-aid Highway funding.

The Federal Functional Classifications are generally defined as follows:

- Freeways and Interstates
- Principal Arterials
- Minor Arterials
- Urban Collectors
- Rural Major Collectors
- Rural Minor Collectors
- Local Roads


## Freeways and Interstates

Interstates are designed to allow for the most efficient movement of people and goods of any roadway, with traffic operating at high speeds and with limited access.

Interstate 90 is the only federally classified freeway/interstate in Kootenai County.
Owned and maintained by Idaho Department of Transportation, I-90 totals 36 miles (179 lane miles) of urban and rural interstates and ramps, and 16 interchanges. Speed limits along l-90 range from 65 to 75 mph .

## KOOTENAI METROPOLITAN TRANSPORTATI ON PLAN



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2025 FEDERAL FUNCTIONAL CLASSIFICATION，
Physical Characteristics


## KOOTENAI METROPOLITAN TRANSPORTATION PLAN



2025 FEDERAL FUNCTIONAL CLASSIFICATION, URBAN, COEUR D' ALENE

Physical Characteristics


- I I Highway Districts
-Interstate
__ US/State Highways
—— Local/Seasonal Roads
† - Railroads
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2025 FEDERAL FUNCTIONAL CLASSIFICATION, URBAN, POST FALLS

Physical Characteristics

" - " . Highway Districts

- Interstate
_US/State Highways
—— Local/Seasonal Roads
$\longmapsto \vdash$ Railroads
Railroads
--- Kootenai County
L-Urban Area Boundary National Forests Her Parks

Water Features


2025 FEDERAL FUNCTIONAL CLASSIFICATION, URBAN, HAYDEN

Physical Characteristics

| " | . Highway Districts
—— Interstate
_US/State Highways

- Local/Seasonal Roads
$\mapsto$ Railroads


Water Features


## Principal Arterials

Principal Arterials are designed to carry high traffic volumes and serve a high proportion of through trips and long-distance travel. Similar to the design of interstates, principal arterials function most effectively when access is limited. Typically, a principal arterial will have at least two lanes in each direction with curbs and sidewalks. In dense urban areas, it is also possible for on-street parking to be located along a principal arterial. Major intersections on urban principal arterials are typically signalized, and the uniformity of signal placement and coordination are critical to the successful operation of the arterial. Signals are discouraged on rural principal arterials, where high speeds make interchanges and grade separations much safer alternatives.

Seltice Way, Prairie Avenue, US 95 through Coeur d'Alene, and SH-41 through Post Falls are classified as urban principal arterials. The County's rural principal arterials are SH-53, US 95 north of Hayden, US 95 from Coeur d'Alene to Benewah County line, and SH-41 north of Prairie Avenue. Speed limits for principal arterials in Kootenai County are generally 35 to 45 mph in urban areas and 55 mph in rural areas. There are approximately 307 lane miles of principal arterials in Kootenai County.

## Minor Arterials

Minor arterials connect private and commercial traffic from lower roadway classifications to the larger transportation system. Minor arterials can have a variety of design characteristics based on the activity level and context of the area they are located in.

Government Way, Lancaster Avenue, and Greensferry Road are examples of minor arterials. There are approximately 315 lane miles of minor arterials in the County, with speed limits generally in the $35-45 \mathrm{mph}$ range.

## Collector

Collector streets collect residential and rural traffic and direct it to minor or principal arterials. Collectors are typically one lane in each direction and operate at speeds of 25 to 35 mph . Direct access to adjoining property is common. Collector streets are subcategorized into Urban Collectors, Rural Major Collectors and Rural Minor Collectors. On-street parking is generally acceptable on an Urban Collector but may be limited. Rural Major Collectors often connect important rural regional facilities directly to state highways or the Interstate system.
$15^{\text {th }}$ Street in Coeur d'Alene, Hayden Avenue, Diagonal Road, and Fernan Lake Road are examples of collectors. There are over 1,160 lane miles of collectors in Kootenai County.

## Local Streets

Local streets provide direct access to individual properties. They operate at speeds below 30 mph and have traffic volumes less than 2,500 ADT. Although local streets are not part of the federal functional classification system, they make up the highest number of road miles in all of Kootenai County.

## Regional Demand Model Street Typology

The KMPO Regional Travel Demand Model expands upon the five broad classifications provided by the Federal Functional Classification System. To reflect the operational conditions unique to each roadway, the model employs 28 categories of street typology.

Table 3.1 KMPO Regional Demand Model Street Typology

| Street Type | Type No. | Capacity (vphpl) | Speed Limit |
| :---: | :---: | :---: | :---: |
| Urban Interstate | 11 | 1900 | 60 |
| Proposed Urban Interstate | 31 | 2000 | 60 |
| Rural Freeway | 1 | 1800 | 70 |
| Urban Principal Arterial | 25 | 1600 | 45 |
| Urban Principal Arterial II | 70 | 1500 | 35 |
| Urban Principal Arterial III | 16 | 1000 | 30 |
| Proposed Urban Principal Arterial | 34 | 1400 | 45 |
| Rural Principal Arterial | 4 | 1200 | 50 |
| Rural Principal Arterial Type II | 3 | 1400 | 50 |
| Proposed Rural Principal Arterial | 22 | 1300 | 60 |
| Urban Minor Arterial | 23 | 1200 | 30 |
| Urban Minor Arterial II | 45 | 700 | 25 |
| Urban Minor Arterial III | 14 | 900 | 30 |
| Proposed Urban Minor Arterial | 36 | 1200 | 40 |
| Rural Minor Arterial I | 47 | 1000 | 35 |
| Rural Minor Arterial II | 69 | 750 | 35 |
| Urban Collector Arterial I | 24 | 1000 | 30 |
| Urban Collector Arterial II | 49 | 600 | 30 |
| Proposed Urban Collector | 37 | 600 | 35 |
| Rural Major Collector | 10 | 800 | 45 |
| Proposed Rural Major Collector | 27 | 1200 | 45 |
| Rural Minor Collector | 43 | 600 | 40 |
| Proposed Rural Minor Collector | 28 | 600 | 35 |
| Local Street | 19 | 500 | 25 |
| Rural Local Street | 9 | 500 | 25 |
| Ramps | 50 | 1500 | 45 |


| Rural Ramps | 51 | 1000 | 45 |
| :--- | :--- | :--- | :--- |
| Urban Arterial Ramp | 57 | 1600 | 45 |

## Number of Lanes, Speed Limits and Intersection Controls

Figures 3.2a through 3.2 e illustrate the number of lanes on existing roadways. Figures 3.3a through 3.3 e show existing speed limits.

Traffic signals, stop signs, and yield signs are all forms of intersection control, and each one creates some level of delay on the street system. Figures 3.4 a through 3.4 e show the different types of intersection controls and their locations on the regional network.

## Traffic Volumes

Accurate collection of system-wide traffic volumes is fundamental to regional transportation planning. KMPO collects traffic counts from local jurisdictions annually to validate the regional transportation demand model (discussed in Section 2) and to monitor roads that are close to exceeding their design capacity. Count data are also used to assist jurisdictions in anticipating when traffic signals or turn lanes may be needed.

Figures 3.5 a through 3.5 e provide the locations where traffic counts are typically collected. Only routes on the federal functional classification system are included in KMPO's count program. KMPO collects traffic counts from local jurisdictions that are taken in the spring or fall, when traffic volumes and patterns most closely reflect the annual average. Roadways affected by construction and dates of major events and holidays that can cause shifts in typical travel patterns are avoided during the count process. Most rural routes are counted approximately every year or two. The time between counts in the urban area may be longer.

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NUMBER OF EXISTING LANES， RURAL，KOOTENAI COUNTY

## Number of Lanes

Physical Characteristics
－1－2 LANES
－3－4 LANES
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－5－6LANES


## KOOTENAI METROPOLITAN TRANSPORTATION PLAN 2020-2040



## NUMBER OF EXISTING LANES URBAN, COEUR D' ALENE

## Number of Lanes

- 1-2 LANES
- 3-4 LANES
- 5-6 LANES


## Physical Characteristics

" " " ${ }^{-1}$ Highway Districts

- Interstate
__ US/State Highways
—_ Local/Seasonal Roads
म+1+ Railroads
--
:-
Kootenai County Urban Area Boundary National Forests Water Features Parks


## KOOTENAI METROPOLITAN TRANSPORTATION PLAN




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## NUMBER OF EXISTING LANES URBAN, POST FALLS

Number of Lanes

- 1-2 LANES
- 3 - 4 LANES
- 5-6 LANES

Physical Characteristics
" " " ${ }^{-\quad H i g h w a y ~ D i s t r i c t s ~}$
—— Interstate
__ US/State Highways
—— Local/Seasonal Roads
+1+ Railroads
[---] Kootenai County
Unban Area Boundary National Forests Water Features Parks



## NUMBER OF EXISTING LANES URBAN, HAYDEN

## Number of Lanes

- 1-2 LANES
- 3-4 LANES
- 5-6 LANES

Physical Characteristics
" " " ${ }^{(H i g h w a y ~ D i s t r i c t s ~}$

- Interstate
_- US/State Highways
_ Local/Seasonal Roads
†+1+ Railroads
I. -. Urban Area Boundary National Forests Water Features Parks



## NUMBER OF EXISTING LANES RURAL, RATHDRUM

Number of Lanes
-_ 1-2 LANES

- 3-4 LANES
—— 5-6 LANES

Physical Characteristics
" " " ${ }^{-1}$ Highway Districts

- Interstate
-_ US/State Highways
_ Local/Seasonal Roads
+1+ Railroads


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Kootenai County Urban Area Boundary National Forests Water Features Parks



## KOOTENAI METROPOLITAN TRANSPORTATION PLAN 2020-2040




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## EXISTING SPEED LIMITS, URBAN, COEUR D' ALENE

## Speed Limits


$\square$

- 30 MPH

35 MPH
40 MPH

50 MPH

## Physical Characteristics

" - \| - Highway Districts

- Interstate
—— US/State Highways
__ Local/Seasonal Roads
- Railroads
--- Kootenai County
I..... Urban Area Boundary National Forests

Water Features
-

## KOOTENAI METROPOLITAN TRANSPORTATION PLAN




- Kootenai n 1 PO


## EXISTING SPEED LIMITS, URBAN, POST FALLS

## Speed Limits

| $<=25 \mathrm{MPH}$ | 55 MPH |
| ---: | :--- |
| 30 MPH | -60 MPH |
| 35 MPH | -65 MPH |
| 4 MPH | -70 MPH |
| 4 MPH |  |
| 45 MPH | -75 MPH |
| 50 MPH |  |

Physical Characteristics
" - " $\cdot$ Highway Districts
—— Interstate
—— US/State Highways

- Local/Seasonal Roads

Railroads


Kootenai County
! ... - Urban Area Boundary National Forests Water Features
$\square$ Parks



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( APO

## EXISTING SPEED LIMITS, URBAN, HAYDEN

## Speed Limits

| $<=25 \mathrm{MPH}$ | 55 MPH |
| ---: | :--- |
|  | $=6 \mathrm{MPH}$ |
| 30 MPH |  |
| 35 MPH | $=65 \mathrm{MPH}$ |
| 40 MPH | -70 MPH |
| 4 MPH | -75 MPH |
| 50 MPH |  |

## Physical Characteristics

! ! - " Highway Districts
—— Interstate

- Local/Seasonal Roads

HRailroads
[--- Kootenai County
!-- - - Urban Area Boundary National Forests Water Features Parks



## EXISTING SPEED LIMITS, RURAL, RATHDRUM

## Speed Limits

| $<=25 \mathrm{MPH}$ | 55 MPH |
| ---: | ---: |
| -60 MPH |  |
| 30 MPH | -65 MPH |
| 35 MPH | -70 MPH |
| 40 MPH | -75 MPH |

Physical Characteristics

- ! ! - Highway Districts
- Interstate
—— US/State Highways
- Local/Seasonal Roads

Railroads

|  | Kootenai County |
| :--- | :--- |
|  | National Forests |
|  | Water Features |
|  | Parks |

50 MPH


| Nosis | EXISTING INTERSECTION CONTROLS, RURAL KOOTENAI COUNTY |  |  |
| :---: | :---: | :---: | :---: |
|  | Control Types | Physical Cha | racteristics |
| $\begin{array}{llllll}0 & 1 & 2 & 4 & 6 & 8\end{array}$ |  | " ' " - " Highway Districts | -] County Boundary |
| Miles | (310) All-Way Stop | _- Interstate | [1..-.".'.l KMPOApprovedUB_2017 |
|  | (1) Roundabout | - US/State Highways | National Forests |
| , | 捫 Signal | -_ Local/Seasonal Roads | Water Features |
| 准 1 PO |  | Railroads | - Parks |
| KOOTENAI METROPOLITAN TRANSPORTATION PLAN $2020-2040$ | *Data based on best available information. ${ }^{\text {PData }}$ for illustrative purposes only. |  |  |

## KOOTENAI METROPOLITAN TRANSPORTATION PLAN



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EXISTING INTERSECTION CONTROL - URBAN COEUR D' ALENE AREA

Control Type
Physical Characteristics
" " " " Highway Districts
—— Interstate
-_ US/State Highways
_Local/Seasonal Roads
+1+ Railroads
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Kootenai County Urban Area Boundary National Forests Water Features Parks


| ${\underset{s}{r}}_{n}^{N}$ | EXISTING INTERSECTION CONTROL - URBAN POST FALLS |  |  |
| :---: | :---: | :---: | :---: |
|  | Control Type Physical Characteristics |  |  |
|  | (e. All-Way Stop | " ". " Highway Districts | Kootenai County Urban Area Bound |
| Wootrna |  | US/State Highways | National Forests |
| M1PO |  | Loca/Seasonal Roads | Water Fea |
|  |  |  |  |




EXISTING INTERSECTION CONTROL - URBAN HAYDEN

Control Type
ง10p All-Way Stop
(i) Roundabout

搧 Signal

Physical Characteristics
".". Highway Districts
Hailroads

- Interstate
- US/State Highways
_- Local/Seasonal Roads $\qquad$ -

Kootenai County Urban Area Boundary National Forests Water Features Parks



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## KOOTENAI METROPOLITAN TRANSPORTATION PLAN




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EXISTING TRAFFIC COUNT LOCATIONS, URBAN, COEUR D' ALENE
Traffic Count Locations
Physical Characteristics
-! - - Highway Districts
—— Interstate
_US/State Highways
—— Local Road
$\longmapsto$ Railroads
*Data based on best available information. *Data for illustrative purposes only



Kootenai , 1 IPO

EXISTING TRAFFIC COUNT LOCATIONS, URBAN, POST FALLS

Traffic Count Locations
Physical Characteristics
-! - - Highway Districts
—— Interstate


County Boundary Urban Area Boundary
_ US/State Highways
—— Local Road
H Railroads

National Forests Water Features Parks

*

EXISTING TRAFFIC COUNT LOCATIONS, URBAN, HAYDEN

## Physical Characteristics

- " - " Highway Districts
—— Interstate
—— US/State Highways
- Local Road

H Railroads

|  | Kootenai County |
| ---: | :--- |
|  | National Forests |
|  | Water Features |
|  | Parks |

*Data based on best available information. *Data for illustrative purposes only


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EXISTING TRAFFIC COUNT LOCATIONS, RURAL, RATHDRUM
Traffic Count Locations

Physical Characteristics
-! \| Highway Districts
—— Interstate
_US/State Highways
—— Local Road
$\longmapsto$ Railroads

|  | County Boundary |
| :--- | :--- |
|  | National Forests |
|  | Water Features |
|  | Parks |

## Measuring System Performance

In assessing system performance, KMPO examines several factors:

- Corridor travel times
- Roadway segment levels of service (peak hour)
- General intersection performance


## Existing Corridor Travel Times

Major corridor travel times are regularly measured for state highway facilities that experience congestion. Highways measured include I 90, US 95, SH 41, and SH 53 in the areas around Post Falls, Rathdrum, Hayden and Coeur d'Alene. Major corridor average travel times are shown in Table 3.2.

Table 3.2 Major Corridor Average Travel Times

| Roadway and <br> Direction of Travel | Congested** <br> Travel Time <br> (min) | Freeflow* <br> Travel Time <br> (min) | Difference <br> (min) | Segment <br> Length <br> (miles) | Average <br> corridor delay <br> per mile <br> (sec) |
| :--- | :---: | :---: | :---: | :---: | :---: |
| I 90 Eastbound <br> State Line to Sherman | 14.5 | 13.6 | 0.9 | 15.3 | 3.5 |
| I 90 Westbound <br> Sherman to State Line | 18.8 | 12.8 | 6.1 | 15.3 | 23.8 |
| US 95 Northbound <br> NW Blvd to Wyoming | 18.4 | 11.1 | 7.3 | 6.4 | 60.5 |
| US 95 Southbound <br> Wyoming to NW B/vd | 18.2 | 11 | 7.2 | 6.4 | 60.1 |
| SH 41 Northbound <br> Seltice Way to SH53 | 13.3 | 12.2 | 1.1 | 7.7 | 8.4 |
| SH 41 Southbound <br> SH53 to Seltice Way | 15.6 | 11.7 | 3.9 | 7.7 | 30.3 |
| SH 53 Eastbound <br> State Line to US95 | 18.5 | 17.0 | 1.5 | 9.4 | 9.6 |
| SH 53 Westbound <br> US95 to State Line | 19.5 | 17.0 | 2.5 | 9.4 | 8.5 |
| *Congested and Free flow travel times were obtained from actual driving time measurements in June of 2016. <br> Subsequent analysis has shown similar congested and free-flow travel times for 2019. To obtain "congested" travel <br> times, the corridor was driven five times in the morning peak period (6:30 to 9:00 am), and five times during the <br> evening peak period (4:00 to t:00 pm). The times shown represent the highest five-run average, which may be <br> either am or pm. Note that these times represent spring/summer conditions. Congestion may be less during <br> autumn/winter months. |  |  |  |  |  |

Figures 3.6a through 3.6e depict state highway corridor average travel times, as measured in 2016.

| Time <br> Period | Roadway and Direction of Travel | Congested Travel Time (min, sec) | Freeflow* Travel <br> Time ( $\mathrm{min}, \mathrm{sec}$ ), quickest actual travel time | Difference (min, sec) Congested Freeflow | Segment Length (miles) | Corridor Delay Per Mile Diff = Congested - Freeflow Travel/Distance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AM Period | I-90 Eastbound <br> State Line to Sherman | 13 min 35 sec | 12 min 50 sec | 0 min 45 sec | 15.3 | 0.3 sec |
| AM Period | 1-90 Westbound Shermanto State Line | 18 min 50 sec | 12 min 46 sec | 6 min 04 sec | 15.3 | 23.8 sec |
| PM Period | 1-90 Eastbound State Line to Sherman | 14 min 30 sec | 13 min 36 sec | 0 min 54 sec | 15.3 | 3.5 sec |
| PM Period | 1-90 Westbound Shermanto State Line | 14 min 18 sec | 13 min 36 sec | 0 min 42 sec | 15.3 | 2.8 sec |



## INTERSTATE 90

## EXISTING

AVERAGE TRAVEL TIMES

SEGMENT TRAVEL TIMES TIME IN SECONDS
\#\# Time Congested
\#\# Time Freeflow
"Congested "travel times were determined
by measuring actual driving times. The route by measuring actual driving times. The route
was driven five times in the morring (6:30-8:30 am) and five times in the evening (4:00- $-6: 00 \mathrm{pm}$.
"Convested times shown are the highest five-run "Congested" times shown are the highes
average, and may be either am or pm.
$\uparrow$
Direction of Travel
$\star$ Beginning \& Ending Points Segment

Physical Characteristics

|  |
| :---: |
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Source: KMPO Staff 2016 Data


| Time Period | Roadway and Direction of Travel | Congested Travel Time (min, sec) | Freeflow* Travel <br> Time (min, sec), quickest actual travel time | Difference (min, sec) <br> Congested Freeflow | Segment Length (miles) | Corridor Delay Per Mile Diff = Congested - Freeflow Travel/Distance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AM Period | US 95 Northbound NW Blvd to Wyoming | 12 min 49 sec | 10 min 01 sec | 2 min 48 sec | 6.4 | 26.3 sec |
| AM <br> Period | US 95 Southbound Wyoming to NW Blvd | 15 min 46 sec | 8 min 33 sec | 7 min 13 sec | 6.4 | 1 min 7 sec |
| PM Period | US 95 Northbound NW Blvd to Wyoming | 18 min 25 sec | 11 min 08 sec | 7 min 17 sec | 6.4 | 1 min 28 sec |
| PM Period | US 95 Southbound Wyoming to NW Blvd | 18 min 12 sec | 11 min 0 sec | 7 min 12 sec | 6.4 | 1 min 8 sec |




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## US 95 EXISTING AVERAGE TRAVEL TIMES

SEGMENT TRAVEL TIMES ~ TIME IN SECONDS
\#\# Time Congested
\#\# Time Freeflow
Congested" travel times were determined by measuring actual driving times. The route was driven five times in the morning (6:30-8:30 am) and five times in the evening (4:00-6:00 pm), may be either am or pm.

Direction of Travel
$\uparrow$
Beginning \& Ending Points Segment

Physical Characteristics


| Time Period | Roadway and Direction of Travel | Congested Travel Time (min, sec) | Freeflow* Travel Time (min, sec), quickest actual travel time | Difference (min, sec) Congested Freeflow | Segment Length (miles) | Corridor Delay Per Mile Diff = Congested - Freeflow Travel/Distance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AM Period | SH 41 Northbound Seltice Way to SH 53 | 13 min 17 sec | 11 min 22 sec | 1 min 55 sec | 7.7 | 14.9 sec |
| AM Period | SH 41 Southbound SH 53 to Seltice Way | 14 min 44 sec | 11 min 58 sec | 2 min 46 sec | 7.7 | 21.6 sec |
| PM Period | SH 41 Northbound Seltice Way to SH 53 | 13 min 19 sec | 12 min 14 sec | 1 min 05 sec | 7.7 | 8.4 sec |
| PM Period | SH 41 Southbound SH 53 to Seltice Way | 15 min 33 sec | 11 min 40 sec | 3 min 53 sec | 7.7 | 30.3 |



SEGMENT TRAVEL TIMES ~ TIME IN SECONDS
"Congested" travel times were determined by measuring actual
driving times. The route was driven five times in the morning (6:00-8:30 am) and five times in the evening (4:00-6:00 pm) may be either am or pm. Source: KMPO Staff 2016

## SH 41 EXISTING AVERAGE TRAVEL TIMES

\#\# Time Congested
\#\# Time Freeflow

Direction of Travel

- Beginning \& Ending Points Segment

Physical Characteristics


| Time Period | Roadway and Direction of Travel | Congested Travel Time ( $\mathrm{min}, \mathrm{sec}$ ) | Freeflow* Travel Time ( $\mathrm{min}, \mathrm{sec}$ ), quickest actual travel time | Difference (min, sec) Congested - Freeflow | Segment Length (miles) | Corridor Delay Per Mile Diff = Congested - Freeflow Travel/Distance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AM Period | SH 53 Eastbound State Line to US 95 | 18 min 27 sec | 16 min 57 sec | 1 min 30 sec | 9.4 | 9.6 sec |
| AM Period | SH 53 Westbound US 95 to Seltice Way | 19 min 02 sec | 16 min 41 sec | 2 min 21 sec | 9.4 | 15 sec |
| PM Period | SH 53 Eastbound State Line to US 95 | 18 min 25 sec | 17 min 05 sec | 1 min 20 sec | 9.4 | 8.5 sec |
| PM Period | SH 53 Westbound US 95 to Seltice Way | 19 min 27 sec | 16 min 57 sec | 1 min 20 sec | 9.4 | 8.5 sec |

 was ariven five titues in the morring (6:30-8:30
and five times in the evening (4:00 (-6:00 "Congested "times shown are the highest five-run

A Direction of Travel
$\star$ Beginning \& Ending Points Segment

Physical Characteristics
. . . Highway Districts

- Interstate
- US/State Highway
+ Rairoad $[-1]$
County Boundary
Wational Forests
Water Features

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> - KiPO

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## Roadway Segment Service Levels

The level of service (LOS) of a roadway is a letter grade from $A$ to $F$, with $A$ representing the best traffic flow conditions and $F$ representing the most congested. The Highway Capacity Manual and AASHTO - Geometric Design of Highways and Streets ("Green Book") list the following levels of service:

- LOS "A": Free flow. Traffic is flowing at or above the posted speed limit and all motorists have complete, unrestricted mobility between lanes.
- LOS "B": Reasonably free flow. Traffic is slightly more congested, with some impingement of maneuverability. Two motorists may be forced to drive side by side, limiting lane changes. LOS B does not indicate a reduced speed from LOS A.
- LOS "C": Stable flow. There is more congestion than present at LOS B, and the ability to pass or change lanes is not always assured. At LOS C, most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity, and posted speed is maintained.
- LOS "D": Approaching unstable flow. At this level of service, speeds are somewhat reduced from posted levels, motorists are hemmed in by other cars and trucks. This is perhaps the level of service of a busy shopping corridor in the middle of a weekday or a functional urban highway during commuting hours. In busier urban areas this level of service is sometimes the goal for peak hours, as attaining LOS C would require a prohibitive cost in bypass roads and lane additions.
- LOS "E": Unstable flow. At this level of service, traffic flow becomes irregular and speeds vary rapidly but rarely reach the posted limit. LOS E indicates a road has exceeded its designed capacity.
- LOS "F": Forced or breakdown flow. This level of service describes an extremely poor performance level, for which travel time cannot be predicted. Flow is forced; every vehicle moves in lockstep with the vehicle in front of it, with frequent drops in speed to nearly zero mph.


## Determining Roadway Levels of Service

For regional planning purposes, KMPO uses a simplified LOS evaluation to determine the performance of roadway segments along with generalized performance measures for intersections. This is because, at the regional level, detailed operational analyses are neither practical nor necessary to identify major system deficiencies. At the project stage, jurisdictions are advised to adhere to level of service analysis methods
recommended in the Highway Capacity Manual. KMPO determines level of service by first completing the following equation for each roadway:
Level of service = Ratio of Volume to Capacity
"Volume" is the number of vehicles that travel through a given point within a certain time period. KMPO examines AM and PM peak hour volumes to identify major deficiencies in the regional network.
"Roadway capacity" is the assumed maximum number of cars per hour that a roadway can carry. For regional planning purposes, KMPO generally assumes lane capacities based on the functional classification of the roadway (Table 3.3); though in some cases, assigned capacities are adjusted if the actual roadway capacity is known to be significantly affected by lane width, surface condition, on-street parking, number of access points, or other factors.

Table 3.3 General Roadway Capacities

| Roadway Classification | Urban Capacity <br> (vphpl) | Rural Capacity <br> (vphpl) |
| :--- | :---: | :---: |
| Interstate or Freeway | 2000 | 1800 |
| Ramp | 1500 | 1000 |
| Principal Arterial | 1500 | 1200 |
| Minor Arterial | 1200 | 1000 |
| Urban Collector | 1000 | -- |
| Rural Major Collector | -- | 800 |
| Rural Minor Collector | -- | 600 |
| Local Street | 600 | 400 |

Table 3.4 shows the volume to capacity ratios KMPO uses to estimate roadway and intersection levels of service in the AM and PM peak hour.

Table 3.4 Roadway Segment and Intersection Hourly Level of Service Criteria

| Roadway <br> Segment LOS | Volume to <br> Capacity Ratio |
| :---: | :---: |
| A | $<0.60$ |
| B | 0.61 to 0.70 |
| C | 0.71 to 0.80 |
| D | 0.81 to 0.90 |
| E | 0.91 to 1.00 |
| F | $>1.0$ |

It is also important to note that establishing daily service levels is highly subjective. A roadway might operate at LOS D for the AM peak hour on one day; have traffic
consistent with LOS C at mid-day; operate at LOS A at night, E or F at other times; and come to a halt once every few weeks.

Figures 3.7 to 3.11 identify roadway sections that have a modeled volume-to-capacity ( $\mathrm{v} / \mathrm{c}$ ) ratio greater than 0.70 (LOS C - LOS F) in the AM peak and PM peak hour.
These roadway deficiencies are also detailed in Tables D. 1 and D.2, found in Appendix D, along with intersection deficiencies (see Intersection Performance, below).
Information presented in Figures 3.7 through 3.11 are intended to convey relative roadway performance in the regional system, not exact service levels. This information should not be substituted for professional traffic engineering analysis at the projectlevel. Table 3.7 lists the number of roadway sections with a LOS greater than 0.7 by jurisdiction for the PM peak hour.

Table 3.5 Roadway Segments by Jurisdiction with LOS C - F, PM PK HR

|  | Level $\mathbf{C}-\mathbf{7 0 \%}$ | Level D - >80\% | Level E - >90\% | Level F - >100\% |
| :--- | :---: | :---: | :---: | :---: |
| ITD | 14 | 3 | 1 | 2 |
| Coeur d'Alene | 22 | 14 | 3 | 1 |
| Post Falls | 0 | 0 | 0 | 0 |
| Hayden | 0 | 0 | 0 | 0 |
| Rathdrum | 0 | 0 | 0 | 0 |
| PFHD | 4 | 0 | 0 | 0 |
| LHD | 0 | 0 | 1 | 0 |
| WHD | 0 | 0 | 0 | 0 |
| ESHD | 0 | 0 | 0 | 0 |
| Dalton Gardens | 2 | 1 | 0 | 0 |
| Total | $\mathbf{4 2}$ | $\mathbf{1 8}$ | $\mathbf{5}$ | $\mathbf{3}$ |

## Intersection Performance

The actual level of service experienced on any given roadway often has more to do with conditions at intersections than on the roadway segments between intersections.

For regional planning purposes, KMPO evaluates intersections using a simplified volume-to-capacity (v/c) ratio estimate. The estimates are not based on the same Highway Capacity Manual calculation used to develop detailed intersection levels of service. Therefore, the v/c ratios reported by the travel demand model should only be used in comparison with one another and not used to compare with v/c ratios calculated by the Highway Capacity Manual procedures.

Similar to the method for determining roadway levels of service, KMPO uses the following equation to determine intersection performance:
Level of service = Ratio of Volume to Capacity
"Volume" refers to the number of vehicles that pass through an intersection per hour.
For KMPO's intersection levels of service calculations, "capacity" is the assumed maximum number of cars per hour that can travel through an intersection in all directions. In the travel demand model, capacity is based on the approach volumes and capacities of the individual streets entering the intersection and the type of intersection control (traffic signal, stop sign, yield, etc.).

Based on the KMPO's procedures for calculating v/c ratios, the travel demand model indicates there are several intersections operating at $\mathrm{v} / \mathrm{c}$ ratios above 0.80 . In some circumstances $\mathrm{v} / \mathrm{c}$ ratios exceed the design capacity of the intersection, resulting in significant delays and often a redistribution of trips to adjacent streets in order to improve travel times.

Figures 3.7 through 3.11 identify intersections that have modeled volume to capacity ratios greater than 0.8 (LOS D - LOS F). Table 3.6 lists the number of intersections with a LOS greater than 0.8 by jurisdiction for the PM peak hour. Detailed evaluation of these intersections by the appropriate jurisdiction is recommended, as the intersections may currently experience excessive delay, hampering the overall performance of the regional system.

Table 3.6 Intersections by Jurisdiction with LOS D - F, PM PK HR

|  | Level D - >80\% | Level E - >90\% | Level F - >100\% |
| :--- | :---: | :---: | :---: |
| ITD | 8 | 6 | 0 |
| Coeur d'Alene | 9 | 2 | 2 |
| Post Falls | 0 | 0 | 0 |
| Hayden | 0 | 0 | 0 |
| Rathdrum | 0 | 0 | 0 |
| PFHD | 0 | 0 | 0 |
| LHD | 0 | 0 | 1 |
| WHD | 0 | 0 | 0 |
| ESHD | 0 | 0 | 0 |
| Total | $\mathbf{1 7}$ | $\mathbf{8}$ | $\mathbf{3}$ |

Intersection and roadway section deficiencies are further detailed in Table D. 3 and D. 4 in Appendix D.

The 2018 Base model VISUM version file used for this MTP update is KMPO_2018_Base 12-9-19.

## KOOTENAI METROPOLITAN TRANSPORTATI ON PLAN 2020-2040




## KOOTENAI METROPOLITAN TRANSPORTATI ON PLAN 2020-2040






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EXISTING CONDITIONS 2018 BUILD AM PEAK LEVEL OF SERVICE, URBAN, COEUR D'ALENE

| - Level C - > 70\% | - $>80 \%$ | - \| - Highway Districts |
| :---: | :---: | :---: |
| Level D - > 80\% | - $>90 \%$ | - Interstate |
| Level E - > 90\% | - $>100 \%$ | - US/State Highways |
| Level F - >100\% |  | — Local/Seasonal Roads $\longmapsto$ Railroad |

*Data based on best available information. *Data for illustrative purposes only


County Boundary Urban Area Boundary National Forests Water_Features Parks

## KOOTENAI METROPOLITAN TRANSPORTATION PLAN 2020-2040




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EXISTING CONDITIONS 2018 BUILD PM PEAK LEVEL OF SERVICE, URBAN, COEUR D'ALENE

## Link V/C Ratios Node V/C Ratios

——Level F - > 100\%
Physical Characteristics
—Level C - > 70\%

- >80\%
- $>90 \%$
—Level E - > 90\%
- > $100 \%$
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## EXISTING CONDITIONS 2018 BUILD AM PEAK LEVEL OF SERVICE, URBAN, POST FALLS

## Link V/C Ratios Node V/C Ratios

Physical Characteristics

| Level C - > 70\% | - > 80\% | - - - ${ }^{\text {- Highway Districts }}$ |
| :---: | :---: | :---: |
| Level D - > 80\% | - > $90 \%$ | - Interstate |
| Level E - > 90\% | - $>100 \%$ | - US/State Highways |
| Level F - >100\% |  | Local/Seasonal Roads |
|  |  | †1+ Railroad |



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## EXISTING CONDITIONS 2018 BUILD PM PEAK LEVEL OF SERVICE, URBAN, POST FALLS

## Link V/C Ratios Node V/C Ratios

Physical Characteristics

| $\square$ Level C - > 70\% | - $>80 \%$ | - - - Highway Districts |
| :---: | :---: | :---: |
| $\longrightarrow$ Level D - > 80\% | - $>90 \%$ | -_ Interstate |
| $\longrightarrow$ Level E - > 90\% | - $>100 \%$ | - US/State Highways |
| $\longrightarrow$ Level F - >100\% |  | $\qquad$ Local/Seasonal Roads <br> †1 - Railroad |

*Data based on best available information. *Data for illustrative purposes only


County Boundary Urban Area Boundary National Forests Water_Features Parks



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## EXISTING CONDITIONS 2018 BUILD AM PEAK LEVEL OF SERVICE, URBAN, HAYDEN

## Link V/C Ratios Node V/C Ratios

$\begin{array}{lll}\text { Level C }->70 \% & >80 \% & \\ \text { Level } \mathrm{D}->80 \% & >90 \% & - \\ \text { Level } \mathrm{E}->90 \% & >100 \% & - \\ \text { Levelerstate } \mathrm{F}->100 \% & & -\quad \text { US/State Highways } \\ \longrightarrow+\text { Racal/Seasonal Roads }\end{array}$



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EXISTING CONDITIONS 2018 BUILD PM PEAK LEVEL OF SERVICE, URBAN, HAYDEN

## Link V/C Ratios Node V/C Ratios

——evel C - > 70\%

- > 80\%
- $>90 \%$
- > $100 \%$
——Level E - > 90\%
——Level F - > 100\%

Physical Characteristics

- | . Highway Districts
—— Interstate
__ US/State Highways
__ Local/Seasonal Roads


County Boundary Urban Area Boundary National Forests Water_Features Parks



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EXISTING CONDITIONS 2018 BUILD AM PEAK LEVEL OF SERVICE, RURAL, RATHDRUM

## Link V/C Ratios Node V/C Ratios

——evel C - > 70\%

- $80 \%$
- $>90 \%$
- $>100 \%$
—Level E - > 90\%
—Level F - > 100\%

Physical Characteristics

- : - I Highway Districts
—— Interstate
- US/State Highways
__ Local/Seasonal Roads


County Boundary Urban Area Boundary National Forests Water_Features Parks


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EXISTING CONDITIONS 2018 BUILD PM PEAK LEVEL OF SERVICE, RURAL, RATHDRUM

## Link V/C Ratios Node V/C Ratios

—Level C - > 70\%
-Level D - > 80\%
—Level E - > 90\%
——Level F - >100\%
Physical Characteristics

- : - - Highway Districts
- Interstate
- US/State Highways
- Local/Seasonal Roads
+1 Railroad


County Boundary Urban Area Boundary National Forests Water_Features Parks

