



Kent Goldthorpe, President  
Dave McKinney, Vice President  
Jim D. Hansen, Commissioner  
Mary May, Commissioner  
Alexis Pickering, Commissioner

Planning & Programming

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15 Jun 2021

## STAFF REPORT

**TO:**  
**FROM:** Ryan Head - Planning and Programming Manager - rhead@achdidaho.org  
**SUBJECT:** Resolution No. 2358 - Livable Streets Performance Measures Adoption  
Hearing  
**MEETING:** Commission Meeting - 23 Jun 2021

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**ATTACHMENT(S):**  
[StfRpt062321\\_RHead\\_AdoptionHearing](#)



Kent Goldthorpe, President  
Dave McKinney, Vice-President  
Jim D. Hansen, Commissioner  
Mary May, Commissioner  
Alexis Pickering, Commissioner

June 15, 2021

TO: Commissioners, Director, and Deputy Directors  
FROM: Ryan Head, AICP CTP, Planning and Programming Manager  
SUBJECT: **Resolution 2358 - Livable Streets Performance Measures – Consideration for Adoption**  
Staff Report for the June 23, 2021 Commission Meeting

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### Executive Summary

On August 19, 2020, with the adoption of the 2020 Capital Improvement Plan, the Commission directed Staff to create an action plan for the development of bike and pedestrian performance measures. On May 12, 2021, Staff presented the draft *Livable Streets Performance Measures* document to the Commission prior to a 4-week public comment period. **The draft is now before the Commission for consideration for adoption.**

### Facts and Findings

Working in full coordination with the Commission's appointed Advisory Committees, ACHD staff has developed bike and pedestrian performances measures in accordance with Commission direction. The following is a summary of actions taken:

- Met regularly with Advisory Committees and internally
  - o 6 total meetings with Bicycle Advisory Committee (BAC) and Pedestrian Advisory Group (PAG) Sub-Committees
  - o 5 total meetings with the full BAC, PAG, and ADA Advisory Committees
  - o 1 meeting with City/County Staff to update them on effort
  - o 3 internal project team meetings
- Reviewed national best practices. *Of note, while bike performance measures are becoming widely accepted, pedestrian performance measures are an emerging practice.*
  - o Based on direct input from the Advisory Committees, a Bicycle and Pedestrian Level of Traffic Stress performance measure was selected due to its adaptability and correlation with desired criteria.

The draft metrics and proposed implementation actions have been consolidated into a draft report entitled, *Livable Streets Performance Measures*. Staff is proposing that the Commission adopt this report as an addendum to ACHD's Transportation Land Use Integration Plan (TLIP). TLIP, originally adopted in parts in 2009 and 2010, is ACHD's foundation for building complete and livable streets for all the citizens of Ada County.

From May 17 to June 14, 2021, ACHD released the draft *Livable Streets Performance Measures* for public comment. Some minor updates have been made to incorporate the public feedback received. A summary of all changes is available as an attachment to this report.

**Fiscal Implications**

Funding for the development of Bike and Pedestrian Performance Measures was approved with the First FY2021 Budget Adjustment on February 3, 2021. As the performance measures are implemented, the fiscal impact will be reviewed with the Commission through IFYWP and Budget updates.

**Policy Implications**

The establishment and adoption of bike and pedestrian performance measures further demonstrates ACHD's commitment to its Complete Streets policy (ACHD Policy 3110) adopted in May 2009. By incorporating this document into the Transportation Land Use Integrate Plan, ACHD will have additional tools to utilize in creating livable streets for all users.

**Alternatives**

1. Adopt Resolution 2358 incorporating the Livable Streets Performance Measures as an addendum to the Transportation Land Use Integration Plan.
2. Do not adopt Resolution 2358 incorporating the Livable Streets Performance Measures as an addendum to the Transportation Land Use Integration Plan.

**Recommendation**

Adopt Resolution 2358 incorporating the Livable Streets Performance Measures as an addendum to the Transportation Land Use Integration Plan.

**Attachment(s)**

Resolution 2358

*Livable Streets Performance Measures*

Summary of Updates due to Public Comment

Public Comments Received

RESOLUTION NUMBER 2358

BY THE ADA COUNTY HIGHWAY DISTRICT BOARD OF COMMISSIONERS:  
KENT GOLDTHORPE, DAVE McKINNEY, JIM D. HANSEN, MARY MAY, AND ALEXIS  
PICKERING.

A RESOLUTION PROVIDING FOR THE APPROVAL AND ADOPTION OF LIVABLE  
STREETS PERFORMANCE MEASURES.

**WHEREAS**, Ada County Highway District (“District”) is the single countywide highway district  
in and for Ada County, Idaho created pursuant to Idaho Code, Chapter 14, Title 40, and has  
exclusive jurisdiction over the public right-of-way; and

**WHEREAS**, pursuant to Sections 40-1310 and 40-1415 of the Idaho Code, the District is  
provided with full power to establish design guidelines for all highways and public rights-of-way  
within Ada County; and

**WHEREAS**, the District previously adopted its Transportation Land Use Integration Plan  
(“TLIP”), establishing a framework for the District to interact with its partner agencies and  
better link land use and transportation planning; and

**WHEREAS**, the proposed Livable Streets Performance Measures set forth in Exhibit “A”  
attached hereto will provide the District with additional tools to utilize in creating livable streets  
for all users, including but not limited to bicyclists and pedestrians; and

**WHEREAS**, it is in the best interest of the citizens of Ada County, Idaho, for the Ada County  
Highway District Board of Commissioners to approve and adopt the Livable Streets  
Performance Measures set forth in Exhibit “A” attached hereto as an addendum to the TLIP;  
and

**NOW, THEREFORE, BE IT RESOLVED**, by the Ada County Highway District Board of  
Commissioners that it does hereby approve and adopt the Livable Streets Performance  
Measures set forth in Exhibit “A” attached hereto.

**BE IT FURTHER RESOLVED** that the Livable Streets Performance Measures shall be  
incorporated by reference into the TLIP and shall be in full force and effective immediately  
upon adoption and approval.

**ADOPTED AND APPROVED** by the Board of Commissioners of the Ada County Highway  
District at its regular meeting held on this 23<sup>rd</sup> day of June, 2021.

ADA COUNTY HIGHWAY DISTRICT  
BOARD OF COMMISSIONERS

RESOLUTION 2358 – APPROVAL AND ADOPTION OF LIVABLE STREETS  
PERFORMANCE MEASURES.

By: \_\_\_\_\_  
Kent Goldthorpe, President

By: \_\_\_\_\_  
Dave McKinney, Vice-President

By: \_\_\_\_\_  
Jim D. Hansen, Commissioner

By: \_\_\_\_\_  
Mary May, Commissioner

By: \_\_\_\_\_  
Alexis Pickering, Commissioner

RESOLUTION 2358 – APPROVAL AND ADOPTION OF LIVABLE STREETS  
PERFORMANCE MEASURES.

# Ada County Highway District



**DRAFT** LIVABLE STREETS PERFORMANCE MEASURES

# ACKNOWLEDGMENTS



## ACHD COMMISSION

Kent Goldthorpe, President  
Dave McKinney, Vice-President  
Jim D. Hansen, Commissioner  
Mary May, Commissioner  
Alexis Pickering, Commissioner

## ACHD PROJECT TEAM

Ryan Head, AICP CTP  
Tom Laws, AICP  
Shawn Martin, PE PTOE  
Dyan Bevins, PE  
Dale Kuperus, PE  
Christy Little  
Alexander Crown

## CONSULTANT TEAM

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Jean Crowther, AICP  
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Cheryl Bloom, Secretary  
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Andrew Query

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Stephen Lewis, Vice Chair\*  
Sarah Taylor, Secretary  
Chris Danley\*  
Charlie Hill  
Joe Jaszweski  
Wava Kaufman\*  
Michael Keith  
Chris Laraway  
Matt Vraspri

\*Bike and Pedestrian Performance Measure Advisory Sub-Committee Members

# LIVABLE STREETS

ACHD's Commitment to **LIVABLE STREETS** was articulated through its 2009 Transportation Land Use Integration Plan (TLIP). This Plan included four guiding documents that help inform all activities of the District:

- Complete Streets Policy
- Livable Streets Design Guide
- Master Street Map
- Cost Share Ordinance

Since 2009, ACHD has adopted a series of various foundational documents that further articulate the vision of TLIP as it applies to various modes of travel:

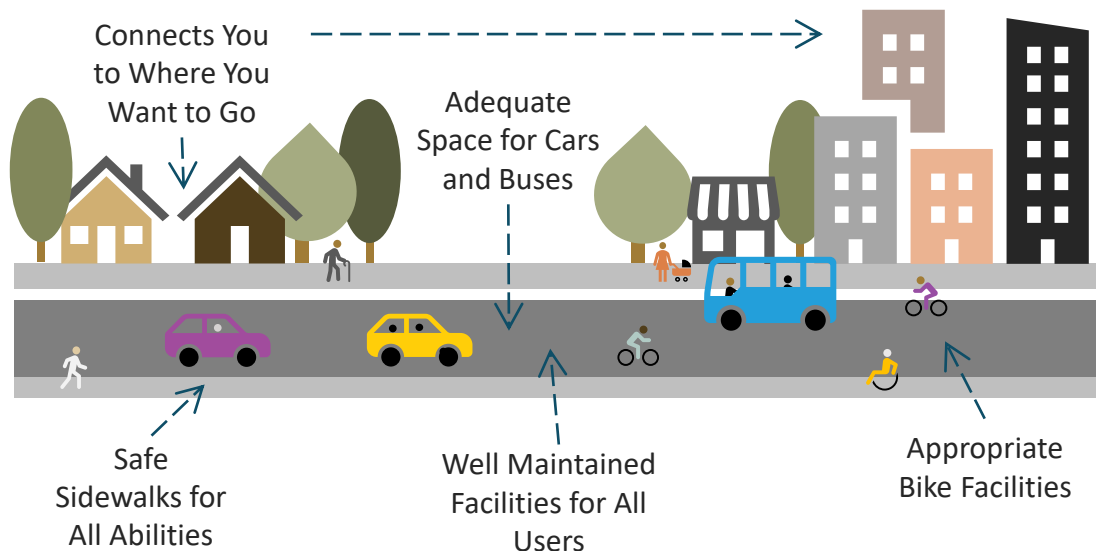
- Bike Master Plan - 2018 Addendum
- Neighborhood Bike and Pedestrian Plans
- Americans with Disability Act Transition Plan Update
- Capital Improvement Plans

This document articulates the measures and procedures ACHD will utilize to gauge the impact and experience of the various users of the transportation system. ACHD's investments will be focused on the vision of livable streets for all users.

## ACHD'S COMPLETE STREETS GUIDING PRINCIPLE

Streets, bridges and transit stops within Ada County should be designed, constructed, operated and maintained so that pedestrians, bicyclists, transit riders, motorists, and people of all ages and abilities can travel safely and independently. (ACHD Policy Manual Section 3110.2)

## ANATOMY OF A LIVABLE STREET



# A MEASUREMENT FOR ALL

## DRIVERS



### LEVEL OF SERVICE (LOS)

A-C	High Comfort Driving
D	Some Traffic
E	Growing Traffic
F	Large Delays

## BICYCLISTS



### LEVEL OF TRAFFIC STRESS (BLTS)

1	High Comfort for All
2	High Comfort for Adults
3	Increasing Stress for Most
4	Strong and Experienced Bicyclists Only

## PEDESTRIANS



### LEVEL OF TRAFFIC STRESS (PLTS)

1	High Comfort for All
2	High Comfort for Adults
3	Increasing Stress for Most
4	High Stress Experience

# A MEASUREMENT FOR DRIVERS

## DRIVERS



### LEVEL OF SERVICE (LOS)

A-C	High Comfort Driving
D	Some Traffic
E	Growing Traffic
F	Large Delays

→

Adopted minimum acceptable planning threshold for Arterials. No adopted threshold for Collectors and Local roads

### VEHICULAR LEVEL OF SERVICE DESCRIPTION

The Vehicular Level of Service performance measure provides a transparent framework to guide assessment of vehicular networks. The LOS reflects relative comfort of roads and intersections. The original methodology was developed by the Florida Department of Transportation. This methodology has been adapted to reflect local experience.

Planning LOS thresholds based on peak hour volumes and specific facility design components (typically the number of travel lanes) help determine the relative comfort for drivers on a corridor. Separate measures for arterial roadways and intersections are derived from tables adopted through the most current Capital Improvement Plan. The most recent Capital Improvement Plan can be found [here](#).

Vehicular LOS is evaluated for the future condition using the travel demand model. This ensures that projects that are built meet the needs for the expected growth projected by the land use jurisdictions for the next 20 years.

# A MEASUREMENT FOR BICYCLISTS

## BICYCLISTS



### LEVEL OF TRAFFIC STRESS (BLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

### BIKE LEVEL OF TRAFFIC STRESS DESCRIPTION

The Level of Traffic Stress Analysis provides a transparent framework to guide assessment of bicycle facility networks. The BLTS reflects relative comfort and safety of roads and intersections. The original methodology was developed and documented in the 2012 Mineta Transportation Institute *Report 11-19: Low-Stress Bicycling and Network Connectivity*. Since the 2012 report, numerous adaptations and updates have occurred. This methodology has been adapted to reflect local experience.

To identify the BLTS for a specific road segment or intersection, the user would select the appropriate table on the following pages.

#### Segments

- Mixed Traffic
- Bike Lane + Buffered Bike Lane
- Raised Lane, Protected Lane, or Multi-Use Paths

#### Intersections

- Unsignalized
- Signalized and Enhanced Crossings
- Roundabouts

In all cases, scores are determined by the weakest link principle, meaning that the least comfortable quality of a roadway or intersection determines the score or ranking for that location.

# A MEASUREMENT FOR BICYCLISTS

## BICYCLISTS



### LEVEL OF TRAFFIC STRESS (BLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## MIXED TRAFFIC

Used in situations where there is no dedicated bike facility, or the dedicated facility is frequently blocked forcing the bicyclist to take the lane.

# of Auto Lanes	Average Daily Traffic	Posted Speed (Actuals When Available)						
		20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
2-Way Street (No Centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
	751-1500	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
	1501-3000	LTS 2	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4	LTS 4
	3000+	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
1-3 (With Centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
	751-1500	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
	1501-3000	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	3000+	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
4-5	0-8000	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	8000+	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
6+	Any ADT	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4

### Adjustment Factors

- Traffic calming features in place on roads with 3 or less lanes – Lower 1 LTS

# A MEASUREMENT FOR BICYCLISTS

## BICYCLISTS



### LEVEL OF TRAFFIC STRESS (BLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## BIKE LANE AND BUFFERED BIKE LANES

Used in situations where there is a dedicated bike lane with or without a painted buffer. Bike lane width is measured exclusive of the gutter pan.

# of Auto Lanes	Bike Lane Width (Includes Buffer)	Posted Speed (Actuals When Available)						
		20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
2-3	6'+	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	4' or 5'	LTS 2	LTS 2	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
4-5	6'+	LTS 2	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	4' or 5'	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
6+	Any Width	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4

### Adjustment Factors

- Heavily Utilized Parking Adjacent to a 4' or 5' Bike Lane – Add 1 LTS
- Roadway Pavement Condition Index Rating Below 70 – Add 1 LTS
- Frequent Commercial Driveway Crossings – Add 1 LTS

## RAISED/PROTECTED LANES AND MULTI-USE PATHS

Used in situations where there are protected bike lanes or multi-use paths. For all segments (between intersections), these would be considered LTS 1.

### Adjustment Factors

- Raised Bike Lanes At >35 MPH – Add 1 LTS
- Frequent Commercial Driveways – Add 1 LTS
- Bike lanes using only candles – Add 1 LTS

# A MEASUREMENT FOR BICYCLISTS

## BICYCLISTS



### LEVEL OF TRAFFIC STRESS (BLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## UNSIGNALIZED INTERSECTIONS

Used in situations where there is no signal. To rank, the highest stress score of any leg would be utilized.

Posted Speed	Total Auto Lanes Crossed		
	1-3 Lanes	4-5 Lanes	6+ Lanes
20-25	LTS 1	LTS 2	LTS 4
30	LTS 1	LTS 2	LTS 4
35	LTS 3	LTS 3	LTS 4
40+	LTS 3	LTS 4	LTS 4

### Adjustment Factors

- Adding a Rectangular Rapid Flashing Beacon (RRFB) – Lower 1 LTS
- Refuge medians of at least 8’ with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.
- Intersections with a Bike Lane and Right Turn Lane – Add 1 LTS

## ROUNDABOUTS

Used in situations with a roundabout to describe the experience when bicyclists take the lane. For those mixing with pedestrians, the pedestrian table would be used.

Circulating Lanes	Total Entry Leg ADT (VPD)	LTS
1	<6000	LTS 2
1	>6000	LTS 3
2+ (Partial or Full)	Any	LTS 4

### Adjustment Factors

- Slip lane present – Add 1 LTS

# A MEASUREMENT FOR BICYCLISTS

## BICYCLISTS



### LEVEL OF TRAFFIC STRESS (BLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## SIGNALIZED INTERSECTIONS AND ENHANCED CROSSINGS

Used in situations where there is a signal present. To rank, the highest stress score of all legs would be utilized.

Intersection Features	Total Auto Lanes Crossed At One Time		
	1-3	4-5	6+
Enhanced Crossing w/ Median Refuge	LTS 1	N/A	N/A
Protected Intersection or Enhanced Crossing (No Refuge)	LTS 1	LTS 2	LTS 3
Floating Bike Lane (Left of RTL)	LTS 2	LTS 3	LTS 4
Bike Lane (Right of RTL or Thru-Right Lane)	LTS 3	LTS 4	LTS 4

### Adjustment Factors

- Refuge medians of at least 8' with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.

# A MEASUREMENT FOR PEDESTRIANS

## PEDESTRIANS



## LEVEL OF TRAFFIC STRESS (PLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## PEDESTRIAN LEVEL OF TRAFFIC STRESS DESCRIPTION

The Level of Traffic Stress Analysis provides a transparent framework to guide assessment of pedestrian facility networks. PLTS is an emerging practice as of 2021. The PLTS reflects relative comfort and safety of roads and intersections. This methodology has been adapted to reflect local experience.

To identify the PLTS for a specific road segment or intersection, the user would review the appropriate table(s) as noted below. In all cases, scores are determined by the weakest link principle, meaning that the least comfortable quality of a roadway or intersection determines the ranking for that location.

### Segments

For segments, all below tables would be reviewed. The highest stress score for any of the tables would be the assigned PLTS for the segment.

- Sidewalk Presence
- Sidewalk Buffer
- Sidewalk Width and Condition

### Intersections

Only the applicable table would be used to describe the intersection.

- Unsignalized
- Signalized and Enhanced Crossings
- Roundabouts

# A MEASUREMENT FOR PEDESTRIANS

## PEDESTRIANS



## LEVEL OF TRAFFIC STRESS (PLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## SIDEWALK PRESENCE

Sidewalk Presence	# of Travel Lanes	Posted Speed (Actuals When Available)				
		20 mph	25 mph	30 mph	35 mph	40+ mph
Complete Both Sides	2 Lanes	LTS 1	LTS 1	LTS 1	LTS 1	LTS 2
	3+ Lanes	LTS 1	LTS 1	LTS 1	LTS 1	LTS 2
Complete 1 Side	2 Lanes	LTS 2	LTS 2	LTS 2	LTS 2	LTS 3
	3+ Lanes	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
Incomplete Both Sides	2 Lanes	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	3+ Lanes	LTS 2	LTS 2	LTS 4	LTS 4	LTS 4

### Adjustment Factors

- Frequent Commercial Driveways – Add 1 LTS
- Low volume residential streets less than 25 MPH – Lower 1 LTS

## SIDEWALK BUFFER

Total Travel Lanes	Total Buffer Width (Includes Landscaping, Parking, Bike Lanes, etc)			
	<5'	5'-10'	11'-14'	15'+
1-2	LTS 2	LTS 2	LTS 1	LTS 1
3	LTS 3	LTS 2	LTS 1	LTS 1
4-5	LTS 4	LTS 3	LTS 2	LTS 1
6+	LTS 4	LTS 4	LTS 3	LTS 2

### Adjustment Factors

- Low volume residential streets with 1-2 lanes – Lower 1 LTS
- Buffers for multi-use paths to be measured at centerline of the pathway.
- Buffers with street trees – Lower 1 LTS

# A MEASUREMENT FOR PEDESTRIANS

## PEDESTRIANS



## LEVEL OF TRAFFIC STRESS (PLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## SIDEWALK WIDTH AND CONDITION

Actual Sidewalk Width	Sidewalk Condition			
	Very Good	Good	Fair	Poor
<4'	LTS 4	LTS 4	LTS 4	LTS 4
4'	LTS 3	LTS 3	LTS 3	LTS 4
5'	LTS 2	LTS 2	LTS 2	LTS 4
6'+	LTS 1	LTS 1	LTS 2	LTS 3

### Adjustment Factors

- Low volume residential streets with 4'-5' sidewalk – Lower 1 LTS
- 5' detached sidewalk in very good or good condition – Lower 1 LTS

## UNSIGNALIZED CROSSINGS

Speed Limit	Total Auto Lanes Crossed At One Time		
	1-3 Lanes	4-5 Lanes	6+ Lanes
20-25	LTS 1	LTS 2	LTS 4
30	LTS 1	LTS 2	LTS 4
35	LTS 2	LTS 3	LTS 4
40+	LTS 3	LTS 4	LTS 4

### Adjustment Factors

- No Illumination Present – Add 1 LTS
- Ramps Inaccessible per Inventory – Add 1 LTS
- Add a Rectangular Rapid Flashing Beacon (Median required when over 3 lanes) – Lower 1 LTS
- Pedestrian refuge medians of at least 8' with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.

# A MEASUREMENT FOR PEDESTRIANS

## PEDESTRIANS



### LEVEL OF TRAFFIC STRESS (PLTS)



Desired facility level for an All Ages and Abilities network. May not be feasible in some land use contexts.

## SIGNALIZED INTERSECTIONS AND CROSSINGS

Intersection Features	Total Auto Lanes Crossed At One Time			
	1-3	4-5	6-7	8+
PHB or Ped Signal	LTS 1	LTS 2	LTS 4	LTS 4
Signalized Intersection	LTS 1	LTS 2	LTS 3	LTS 4

### Adjustment Factors

- Ramps and Pushbuttons Inaccessible per Inventory – Add 1 LTS
- No Illumination Present – Add 1 LTS
- Add Leading Pedestrian Interval – Lower 1 LTS
- Pedestrian refuge medians of at least 8’ with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.
- Frequency of signalized crossing opportunities should be considered during project design.

## ROUNDABOUTS

Lanes Crossed	LTS w/o Enhanced Crossing	LTS w/ Enhanced Crossing
1	LTS 2	LTS 1
2+	LTS 2	LTS 1

### Adjustment Factors

- Slip lane present – Add 1 LTS

# IMPLEMENTATION STRATEGY

Moving the **LIVABLE STREETS PERFORMANCE MEASURES** from idea into everyday practice is a key part of the success of this effort. Many activities are already underway. The list here is a summary of current and proposed actions being taken to fully embrace the measures set forth in this document. The identified responsible department and timeline is a guide to encourage ongoing effort to implement these measures.

In all things, ACHD is committed to its Complete Streets policy and seeking to meet the desired performance levels identified here.



## ONGOING EFFORTS

EFFORT DESCRIPTION	RESPONSIBLE DEPARTMENT
Expand the scope of roadway maintenance projects to include a comprehensive improvement for all users.	Planning
Establish multi-use paths and raised or protected bike lanes as the standard bike facility treatment on arterial roadways.	Planning
Select and acquire sweeper equipment for use in protected bike lanes.	Maintenance
Development typical drawings reflecting best practices for raised bike lanes and multi-use paths (including at driveways and intersections).	Design
Establish an interim policy for the construction of temporary multi-use paths along arterial roadways with development.	Development Services
Hire a Bicyclist and Pedestrian Program Coordinator to facilitate implementation.	Planning

## NEW EFFORTS

EFFORT DESCRIPTION	RESPONSIBLE DEPARTMENT	TIMELINE
Hold training for all project team members on new metrics.	Planning	Summer 2021
Develop projects that meet desired performance levels during project scoping. Document if not able to meet.	Planning	Summer 2021
Review current design efforts to determine if projects will meet desired LTS upon construction. Revise as feasible.	Capital Projects	Summer 2021
Establish comprehensive project prioritization process to be used across all categories and modes for the IFYWP.	Planning	Fall 2021
Review Sections 7100 and 7200 for modifications to bring development review in alignment with new measures.	Development Services	Winter 2022
Review and adjust other ACHD policies as identified that support implementing Livable Streets.	All	Ongoing

# Summary of Updates

Post-Public Comment Period

SUMMARY OF UPDATE	PAGE
Grammatical updates and general clean-ups	Various
Added clarifying language that speeds refer to posted speeds, but that actuals would be used if available.	Various
Modified descriptions of the Driver Levels of Service	Page 5
Mixed Traffic Table: Added adjustment factor to reflect a lower LTS when traffic calming features are present	Page 7
Bike Lane Table: Added clarifying language to indicate bike lane width is exclusive of the gutter pan.	Page 8
Bicyclist Roundabout Table: Added adjustment factor to reflect higher LTS when a slip lane is present in the roundabout.	Page 9
Sidewalk Buffer Table: Added adjustment factor to reflect lower LTS when street trees are present in the buffer.	Page 12
Pedestrian Unsignalized Crossings Table: <ul style="list-style-type: none"><li>Added adjustment factor to reflect higher LTS when ramps are inaccessible per ACHD ADA Transition Plan Inventory</li><li>Added clarifying language to Rectangular Rapid Flashing Beacon adjustment factor to indicate it would only apply for roads over 3 lanes if a median is also present.</li></ul>	Page 13
Pedestrian Signalized Intersections and Crossings Table: <ul style="list-style-type: none"><li>Added adjustment factor to reflect higher LTS when no illumination is present.</li><li>Added note directing that the frequency of signalized crossing opportunities should be considered during project design.</li></ul>	Page 14
Pedestrian Roundabout Table: Added adjustment factor to reflect higher LTS when a slip lane is present in the roundabout.	Page 14

## Ryan Head

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**Subject:** FW: Comments: Measuring Levels of Traffic Stress for Bicyclist and Pedestrians

**From:** Jenah Thornborrow

**Sent:** Monday, June 14, 2021 1:53 PM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Comments: Measuring Levels of Traffic Stress for Bicyclist and Pedestrians

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Ryan,

Please accept these comments related to the draft document related to “level of stress” assessment for bicycles and pedestrians.

Garden City applauds ACHD for its efforts to address a street network that is usable by all its constituents. Thank you.

Specific feedback to the criteria is below:

### **Driving Measurements**

- Comfort of driving should also include safety (e.g. few conflicts, accidents are low volume and not severe, etc.).

### **Bicycle Measurements**

- Please consider curves as something that can detract from comfort. For example if a parent has a child on the back of the bike or in a trailer, their equilibrium is thrown off, and even a greenbelt path can be precarious if they are navigating curves.
- There is not a high level of comfort for on-street paths for *all users*, ever, if it is shared with a vehicle regardless of the ADT. If someone is mobility impaired or young they are likely to be comfortable only on separated paths. I would urge ACHD to consider always having safe routes to schools, in particular elementary schools, be separated.

### **Pedestrian Measurements**

- The treatment of the buffer is important. It is much more comfortable to walk where there are detached sidewalks buffered by large trees rather than a two foot concrete buffer.
- Please consider adding frequency of crossings as a measurement.

Thank you,



**Jenah E. Thornborrow**

*Director*

Development Services Department, **City of Garden City**

p: 208-472-2921

a: 6015 Glenwood Street, Garden City, ID 83714

w: <https://gardencityidaho.org/>



## Ryan Head

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**Subject:** FW: Draft Livable Street Performance Measures

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**From:** Stacey Yarrington

**Sent:** Thursday, May 20, 2021 11:37 AM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Draft Livable Street Performance Measures

Hi Ryan,

Thanks for the opportunity to review the above proposed draft. I think it looks great and the only comment I really have is regarding the "Adjustment Factors" on page 8 where the pavement condition index rating is referred to. I don't know how the average person is going to recognize/know whether a roadway meets above or below that criterium.

Thanks again and have a great day.



**Stacey Yarrington**  
**Community & Regional Planner**  
**Ada County Development Services**  
200 W. Front St., Boise, ID 83702  
[syarrington@adacounty.id.gov](mailto:syarrington@adacounty.id.gov)  
(208) 287-7944 *office*  
(208) 287-7909 *fax*

**Ryan Head**

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**Subject:** FW: Draft Livable Streets Performance Measures

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**From:** Suzanne Troje <[cybersuze@gmail.com](mailto:cybersuze@gmail.com)>  
**Sent:** Monday, June 14, 2021 4:03 PM  
**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>  
**Subject:** Draft Livable Streets Performance Measures

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Thank you very much for the opportunity to review the Draft Livable Streets Performance Measures.

I welcome any steps ACHD takes to make our streets safer for all. To the maximum extent possible, bike lanes and pedestrian traffic should be separated from automobiles with a protected barrier, esp. when such lanes are shared with cars going over 20 mph (which appears to be a lower threshold than in the draft). Unfortunately drivers routinely exceed posted limits and there is little traffic enforcement. This should be taken into consideration, as well as the measured impact changes in speed have on pedestrians and cyclists.

I am particularly encouraged with ACHD's plans to appoint a Bicyclist and Pedestrian Program Coordinator.

Thank you for your efforts.

Sincerely,  
Suzanne Troje  
1408 N.15th Street  
Boise, ID 83702

**Ryan Head**

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**Subject:** FW: Performance measures for bicycles and pedestrians

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**From:** Susan Hessing

**Sent:** Monday, June 14, 2021 7:53 AM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Performance measures for bicycles and pedestrians

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good morning. I live in a neighborhood near the Cloverdale overpass and both drive and walk the area of the protected bike lane. I'd like to make a suggestion that you paint the top edge of the curb a different color, possibly a reflecting paint. The color of the cement blends with the road making it difficult to see at times, both walking and driving. I know this area is near a school and gets quite a bit of use, and painting the curb would make it safer for everyone who uses it.

Thanks for considering.

Susan

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## Ryan Head

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**Subject:** FW: Tell Us 21-01588 - Livable Streets - Open

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**From:** Tellus <Tellus@achdidaho.org>

**Sent:** Thursday, June 10, 2021 8:18 AM

**To:** Ryan Head

**Subject:** Tell Us 21-01588 - Livable Streets - Open

A Tell Us submission was received on 6/9/2021.

TellUs Request: 21-01588

From: L Johnston

Subject: Livable Streets

Category: Other

Point of Reference: Cartwright Road

Location/Intersection:

Date and Time Occurred:

Issue: In reference to Livable Streets - I admire your effort but I see no safety measures for truck/horse trailers or horse and riders when using roads and/or crossing them. Unfortunately, this is typical, equestrians are not considered or CYB solutions are put in place. Equestrians are not the complaining type, they just stay silent and work around things - cowboy/cowgirl up. I am happy to help you. I also hike, walk, run, ride bikes (have 4), bird/wildlife watch, enjoy the rivers and have lived here over 30 years.

Department Assigned: Planning and Projects

## Ryan Head

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**Subject:** FW: TellUs 21-01542 - Livable Streets draft - Closed

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**From:** Tellus <Tellus@achdidaho.org>

**Sent:** Wednesday, June 9, 2021 11:26 AM

**To:** Ryan Head

**Subject:** TellUs 21-01542 - Livable Streets draft - Closed

A TellUs submission was received on 6/9/2021 11:25 AM.

TellUs Request: 21-01542

From: Sarah Jordan

Subject: Livable Streets draft

Category:

Point of Reference: Curtis & Fairview

Location/Intersection:

Date and Time Occurred:

Issue: Love the draft for the livable streets measurement. I would love to see this plan move forward across many areas of Boise.

Department Assigned: Planning and Projects

## Ryan Head

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**Subject:** FW: Tell Us 21-01557 - bike safety - risks from aggressive or ignorant drivers - Open

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**From:** Tellus <Tellus@achdidaho.org>

**Sent:** Tuesday, June 8, 2021 8:14 AM

**To:** Ryan Head

**Subject:** Tell Us 21-01557 - bike safety - risks from aggressive or ignorant drivers - Open

A Tell Us submission was received on 6/7/2021.

TellUs Request: 21-01557

From: Rick Ferguson

Subject: bike safety - risks from aggressive or ignorant drivers

Category:

Point of Reference: ACHD transportation plan for bike, ped. and cars

Location/Intersection:

Date and Time Occurred:

Issue: You plan regarding bike comfort levels on various types of roads assumes drivers are courteous of bicyclists. If there is no bike lane many drivers will pass very close to the bicyclist. If the bicyclist wavers off line, they could easily be hit. Other drivers believe the bikes have no business on the road and they intentionally just barely miss the bicyclist. These drivers make roads without bike lanes very dangerous, even with the road is not heavily traveled. You need a strong program to educate these drivers and make them understand that they are wrong. Las Vegas requires cars to drive at least 3 feet away from bicyclists. This area needs a policy and education program. Thanks.

Department Assigned: Planning and Projects

## Ryan Head

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**Subject:** FW: Livable Streets Performance Measures Feedback

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**From:** Paul Goralski

**Sent:** Sunday, June 6, 2021 10:49 PM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Livable Streets Performance Measures Feedback

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hello:

Thank you for providing the draft performance measures document for review and the traffic stress matrix for cyclists and pedestrians. I think the measurement format is a good starting point and I am interested in hearing more regarding upcoming projects which will help address some of the causes of pedestrian and cyclist stress. Additional public communication of the projects and priority would be appreciated.

Regards,

Paul Goralski  
4610 W. Irving St.  
Boise, ID 83706

## Ryan Head

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**Subject:** FW: Formal Comments on ACHD Livable Streets Performance Measures  
**Attachments:** ACHD-LTS-Recommendations.pdf; Additional Pedestrian LTS Measures.docx

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**From:** Don Kostelec  
**Sent:** Sunday, June 6, 2021 10:56 AM  
**To:** Projects <projects@achdidaho.org>  
**Subject:** Formal Comments on ACHD Livable Streets Performance Measures

Hello - Below and attached are my comments and recommendations after a review of the proposed performance measures. I spent much of Saturday, June 5, 2021 testing these measures among common ACHD roadway design treatments. My comments are based on suggestions to better align these measures with prevailing conditions experienced by pedestrians and bicyclists. I have noted examples on local streets where my comments align with the design practice.

In all, most of my comments related to tweaks to the LTS measure to better account for these conditions. In the PDF file, I have put in **BLUE** text bullets to Add/Lower LTS based on certain conditions. For example, ACHD designs roundabout bypass lanes as a standard practice. FHWA research shows these create issues for pedestrians and bicyclists, and therefore **Add 1 LTS** should be included in the bicyclist and pedestrian LTS measures related to roundabouts.

I have referenced FHWA, AASHTO, ITE or ACHD publications to justify many of these recommendations. I hope the members of the PAC, BAC, and ADA committees, as well as City and CCDC staff, on this email can provide additional verbal and written support for these comments as I believe they relate to how they experience the transportation system. They are organized below by topic:

### Overall:

- **Page 5 states "Vehicular LOS is only utilized to evaluate the arterial roadway network."**
  - That is not my understanding of such practice as collectors are also a component of this analysis. It was learned during the Leadville Bikeway Project that certain intersection treatments to promote more of a bicycle priority corridor were not included due to motorist LOS at non-arterial intersections along that route.
  - ACHD Policy Manual Section 7106.4.1 Level of Service Planning Thresholds denotes collectors as being part of this analysis.
- **Construction Zones:** The Implementation Strategy section should include expectations for incorporating LTS into construction zone policies. A starting point would be that a construction zone would not degrade the existing LTS for pedestrians or bicyclists. If degradation of LTS was deemed necessary, then additional speed management and protected temporary facilities must be applied. This would be consistent with MUTCD's Section 6 on accessibility that states a pedestrian detour route must be comparable to the route pre-construction.
  - **Bicyclists:** The goal to not degrade LTS in a construction zone would move away from ACHD treating every bike lane closure the same. Expecting a bicyclist to share the lane on Capitol Boulevard when that bike lane is closed is very different from expecting a bicyclist to share the lane when the bike lane on Bannock or River Run is closed. That's a major Level of Traffic Stress a bicyclist feels in being forced to share a lane with motor vehicles on Capitol versus the other stress.
  - **Pedestrians:** As I noted in previous emails about LTS to many in this group, the recent issue at Chinden/VMP showcases the need for LTS-related measures to ensure both exposure and out-of-direction travel are minimized in construction zones. LTS is a way to get at that issue. The original

pedestrian detour was 20-minutes long just to cross a street. That's a high LTS if people follow that guidance, which led to many ignoring it and risking their own safety.

## **Bicyclists**

As noted above, my comments for bicyclists relate primarily to adjustments to the existing proposed methods, which I believe is strong and will be even more representative of local street conditions with these changes. It was also great to hear that ACHD is moving away from the outdated bikeway selection matrix in the Roadways to Bikeways Plan. My hopes are that this LTS is adopted as policy since the matrix never was, which led to many advocates hearing from ACHD staff that "we don't have to follow the matrix because it's not a formal policy."

- **Couplets:** There is no consideration for the added stress that couplets present for bicyclists. Add 1 LTS should be noted if a couplet is involved.
- **Bike Lane Widths:** Clarify that the gutter pan doesn't count in bike lane width.
  - For reference and videos, see this blog post: <http://www.kostelecplanning.com/gutterdoesntcount-a-complete-guide-to-why-the-gutter-isnt-the-bike-lane/>
- **LTS 2 on 30 & 35 mph 2-3 lane roads with bike lanes is suspect.** See Boise Ave as an example. Should be LTS 3. I think TVCA can confirm this from their recent bike audit along this route.
- **Unsignalized intersections:**
  - **LTS 2 on a 30 mph route crossing 4-5 lane at an unsignalized intersection is suspect.** Cross Orchard Street and you'll feel that category should be LTS 3.
  - **Add bullet to account for bike lanes on the cross street as additional crossing distance.** 2 x 5' bike lanes = 10' = 1 additional "auto" lane crossed.
- **Roundabouts:** Add 1 LTS if roundabout has a bypass lane. These bypass lanes create issues for bicyclists using the drive aisles and add an additional, designed for higher vehicle speeds, lane if they use the slip ramps and shared pathway to navigate the roundabout. See Warm Springs/Parkcenter and design of Amity/Eagle as examples.
- **Signalized Intersections & Enhanced Crossings:**
  - **Flashing Yellow Arrows:** Add 1 LTS if there is a FYA. ACHD's study is cited in noting that FYA conversions resulted in more crashes. Bicyclists would be more susceptible to injury or death than motorists due to those increased crashes.
  - **Add bullet to account for bike lanes on the cross street as additional crossing distance.** 2 x 5' bike lanes = 10' = 1 additional "auto" lane crossed.
- **Shared Use Pathway Intersections:** For Implementation Strategies, there needs to be exploration of this. If bicyclists are subject to laws for pedestrian signals, then there will be conflict as their speed getting through an intersection is higher than a pedestrian's which means they have much more time to get through than what the typical WALK phase gives them. I also foresee design conflicts and added LTS if shared use pathway crossings are treated only as wider sidewalk crossings with normal crosswalks and ramps versus more focused design to manage motorist expectations of bi-directional, variable speed users from the pathway crossing.
- **Protected intersections:** It's good to see ACHD including protected intersections in the LTS measure. I assume that means ACHD will soon have design concepts adopted for protected intersections and begin scoping them in projects.

## **Pedestrians**

- **Signal Delay:** My February 1 email to many of you cited FHWA's publication on pedestrian delay at signalized intersections. It is discouraging to see nothing in the LTS method for what pedestrians experience at these intersections that increases their level of Traffic Stress. I went out to Fairview and Cole yesterday to take videos to illustrate the increased LTS pedestrians have at this intersection. I chose that one because it is more indicative of ACHD's latest intersection design treatments. Fairview/Cole, when measured in the current proposed LTS would receive LTS 1 if the median was only a couple feet wider. Go out to that intersection and walk it and you tell me if this fits. Right Turns on Red also increase LTS at an intersection like this, as my video shows. RTOR induces motorists to encroach on the crosswalk when pedestrians have the right of way.
  - **LTS for Signal Delay:** The attached Word file has a table and measures that should be added to the ACHD proposed LTS to account for signal delay and crossing times. FHWA's research notes that pedestrian delay of 60 seconds or more is LOS F. My suggestion is ACHD use data from its Congestion Management Group to obtain the peak hour cycle lengths at these intersections as a suitable replacement to having to calculate average pedestrian delay. Fairview/Cole had a cycle length of 150 seconds on a Saturday, mid-day. I suspect it is more during a weekday peak hour. That would be LTS 4.
    - **Fairview/Cole video on delay:** <https://www.youtube.com/watch?v=x2yJgmXQrY4>
- **Pedestrian Signal Timing:** I did not have time to develop a conceptual LTS table for how pedestrian signals are timed. You'll see in the video below that one leg of Fairview/Cole is set to less than the MUTCD minimum WALK phase of 7 seconds, while another leg includes more than 25 seconds of WALK time. There should be an LTS measure for pedestrian signal timing.
  - Does it only meet or is programmed for less time than MUTCD minimums?: Higher LTS
  - Are pedestrian signal phases given less time in peak hour due to promoting motorist LOS?: Higher LTS
  - Signal phasing allows multi-threat crashes?: Higher LTS
  - Does it automatically give the WALK signal?: Lower LTS.
  - Is the Flashing Yellow Arrow pre-empted for a Pedestrian Phase: Lower LTS.
  - Is there a Leading Pedestrian Interval: Lower LTS.
    - **Fairview/Cole video:** <https://www.youtube.com/watch?v=rpbNtOkM2RY>
- **Pedestrian Crossing Spacing:** Forcing pedestrians to walk long distances out of their way to cross a street add traffic stress. There must be an LTS measure for signalized crossing spacing, especially on arterials and higher volume/speed collectors. The attached Word file contains a conceptual LTS for spacing based on AASHTO and ITE design guides that are endorsed by FHWA. To illustrate this, I took a video on Ustick between Cole and Milwaukee to show what good spacing looks like. I then went to Fairview between Cole and Milwaukee to show what bad spacing looks like.
  - **Video:** <https://www.youtube.com/watch?v=nTksY4azBEw>
- **Sidewalk Buffer:** Bike lanes do not provide the same buffer space as a landscaped or tree-lined buffer. However, the proposed LTS looks at this horizontal space as the same. I took a video on Front east of Broadway and out on Ustick to show how a sidewalk separated by a landscaped buffer is very different in terms of LTS than one separated by only a bike lane buffer. You'll see in the video that both would score the same in the proposed methodology. Lowering LTS by 1 for trees would be a way to incentivize cities to participate in the cost share, which was a major element of the original Livable Street Design Guide. The differences in traffic stress for these conditions should be accounted for and I made recommendations for adjustment that LTS measure in the attached PDF. I make other recommendations on Add/Lower LTS in the attachment.
  - **Video:** <https://www.youtube.com/watch?v=JXGgIsmFTnA>
- **Illumination:** As with buffers, not all lighting is the same. At both signalized and unsignalized intersections there is FHWA guidance on appropriate illumination. Illumination that's in line with FHWA's preferred designs should be subject to the Lower 1 LTS. There is no consideration for illumination in the signalized crossing LTS measure, but should be.
  - **Reference:** <https://www.fhwa.dot.gov/publications/research/safety/08053/>
- **ADA Compliance:**

- **Sidewalk Width and Condition:** Add 1 LTS for routes with driveways with cross slopes >2%
- **Unsignalized Crossings:** Add 1 LTS for Ramps and Pushbuttons inaccessible based on inventory (makes consistent with signalized crossing LTS).
- **Signalized Intersections:** Simply relying on the ADA Transition Plan inventory for ramp compliance is insufficient. On my daily walk in SE Boise there are several ramps coded as compliant in the ACHD database but are not (I'm most referring to directional ramps, assuming the new diagonal ramp inventory is accurate). If ACHD is doing systemwide LTS analysis, then the inventory may suffice, but corridor or intersection-specific analysis needs field verification on compliance.

Thank you for the opportunity to comment on this and for the work so many volunteers continue to put toward improving conditions for vulnerable road users.

## MIXED TRAFFIC

Used in situations where there is no dedicated bike facility, or the dedicated facility is frequently blocked forcing the bicyclist to take the lane.

# of Auto Lanes	Average Daily Traffic	Vehicle Speeds						
		20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
2-Way Street (No Centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
	751-1500	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
	1501-3000	LTS 2	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4	LTS 4
	3000+	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
1-3 (With Centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
	751-1500	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
	1501-3000	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	3000+	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
4-5	0-8000	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	8000+	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
6+	Any ADT	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4

Actual speeds or posted speed limit?

- Speed management applications in place or planned with  $\leq 3$  lanes – Lower 1 LTS
- Couplet Street – Add 1 LTS

## BIKE LANE AND BUFFERED BIKE LANES

Used in situations where there is a dedicated bike lane with or without a painted buffer.

# of Auto Lanes	Bike Lane Width (Includes Buffer)	Posted Speeds						
		20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
2-3	6'+	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	4' or 5'	LTS 2	LTS 2	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
4-5	6'+	LTS 2	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	4' or 5'	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
6+	Any Width	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4

Clarify that the gutter pan doesn't count in measuring bike lane width.

This is suspect. Routes like Boise Ave are like this and most non-MAMIL adults use the sidewalks, as I observed in my counts and daily observances. TVCA can probably confirm from their recent bike audit on Boise Ave.

### Adjustment Factors

- Heavily Utilized Parking Adjacent to a 4' or 5' Bike Lane – Add 1 LTS
- Roadway Pavement Condition Index Rating Below 70 – Add 1 LTS
- Frequent Driveway Crossings – Add 1 LTS

• Couplet Street – Add 1 LTS

## RAISED/PROTECTED LANES AND MULTI-USE PATHS

Used in situations where there are protected bike lanes or multi-use paths. For all segments (between intersections), these would be considered LTS 1.

### Adjustment Factors

- Raised Bike Lanes At >35 MPH – Add 1 LTS
- Frequent Driveway – Add 1 LTS
- Protected bike lanes using only candles – Add 1 LTS

Good to see this not counted as fully protected given the experience on Cloverdale from I-84 to Franklin.

Prefer “protected” not be used here since only candles are just vertical paint and provide no physical protection, as witnessed on the first attempt at a cycle track on the Fairview Bridge.

Suggest: “Bike lanes with only paint and candles” to remove any reference to protection.

## UNSIGNALIZED INTERSECTIONS

Used in situations where there is no signal. To rank, the highest stress score of any leg would be utilized.

Posted Speed	Total Auto Lanes Crossed		
	1-3 Lanes	4-5 Lanes	6+ Lanes
20-25	LTS 1	LTS 2	LTS 4
30	LTS 1	LTS 2	LTS 4
35	LTS 3	LTS 3	LTS 4
40+	LTS 3	LTS 4	LTS 4

### Adjustment Factors

- Adding a Rectangular Rapid Flashing Beacon (RRFB) – Lower 1 LTS
- Refuge medians of at least 8' with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.
- Intersections with a Bike Lane and Right Turn Lane – Add 1 LTS

## ROUNABOUTS

Used in situations with a roundabout to describe the experience when bicyclists take the lane. For those mixing with pedestrians, the pedestrian table would be used.

Circulating Lanes	Total Entry Leg ADT (VPD)	LTS
1	<6000	LTS 2
1	>6000	LTS 3
2+ (Partial or Full)	Any	LTS 4

- Roundabout Bypass Lane – Add 1 LTS

### Reference:

#### NCHRP Report 672. Roundabouts: An Informational Guide (2010)

- "A right-turn bypass lane (or right-turn slip lane) should be implemented only where needed, especially in urban areas with bicycle and pedestrian activity. The entries and exits of bypass lanes can increase conflicts with bicyclists and with merging on the downstream leg...The generally higher speeds of bypass lanes and the lower expectation of drivers to stop may increase the risk of collisions with pedestrians. They also introduce additional complexity for pedestrians with visual impairments who are attempting to navigate the intersection." (Page 6-78)

This one is suspect. Orchard St in Boise is 4 lanes and posted 30 mph. Crossing it at an unsignalized intersection is not "High Comfort for Adults."

Add Bullet to state:

If Bike Lanes are present (2 x 5' = 10') then count that as 1 additional lane in what a bicyclist must cross in terms of distance at a signalized intersection.

## SIGNALIZED INTERSECTIONS AND ENHANCED CROSSINGS

Used in situations where there is a signal present. To rank, the highest stress score of any leg would be utilized.

Intersection Features	Total Lanes Crossed At One Time		
	1-3	4-5	6+
Enhanced Crossing w/ Median Refuge	LTS 1	N/A	N/A
Protected Intersection or Enhanced Crossing (No Refuge)	LTS 1	LTS 2	LTS 3
Floating Bike Lane (Left of RTL)	LTS 2	LTS 3	LTS 4
Bike Lane (Right of RTL or Thru-Right Lane)	LTS 3	LTS 4	LTS 4



Clarify: Auto Lanes?

Add Bullet to state:

If Bike Lanes are present (2 x 5' = 10') then count that as 1 additional lane in what a bicyclist must cross in terms of distance at a signalized intersection.

### Adjustment Factors

- Refuge medians of at least 8' with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.

## • Flashing Yellow Arrow – Add 1 LTS

### Reference:

#### Ada County Highway District's Flashing Yellow Arrow Initiative (2015)

"ACHD experienced an increase in crashes at locations converted from a protected only signal to protected/permissive phasing with a FYA. This increase is a tradeoff for increased signal efficiency that is highly valued by the constituents of Ada County." (Page 6)

[https://www.westernite.org/annualmeetings/15\\_Las\\_Vegas/Papers/2C-Curns.pdf](https://www.westernite.org/annualmeetings/15_Las_Vegas/Papers/2C-Curns.pdf)

- It would stand to reason that this documented increase in crashes would be more severe for a bicyclist than a motorist, thus necessitating adding 1 LTS.

## SIDEWALK PRESENCE

Sidewalk Presence	# of Travel Lanes	Posted Speeds				
		20 mph	25 mph	30 mph	35 mph	40+ mph
Complete Both Sides	2 Lanes	LTS 1	LTS 1	LTS 1	LTS 1	LTS 2
	3+ Lanes	LTS 1	LTS 1	LTS 1	LTS 1	LTS 2
Complete 1 Side	2 Lanes	LTS 2	LTS 2	LTS 2	LTS 2	LTS 3
	3+ Lanes	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
Incomplete Both Sides	2 Lanes	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	3+ Lanes	LTS 2	LTS 2	LTS 4	LTS 4	LTS 4

### Adjustment Factors

- Frequent Driveways – Add 1 LTS
- Low volume residential streets less than 25 MPH – Lower 1 LTS

This one is suspect due to speed. Any route with this speed is likely to be an arterial with land uses that generate trips and a person would have to walk on the side without sidewalks if destinations were on that side.

## SIDEWALK BUFFER

Total Travel Lanes	Total Buffer Width (Includes Landscaping, Parking, Bike Lanes, etc)			
	<5'	5'-10'	11'-14'	15'+
1-2	LTS 2	LTS 2	LTS 1	LTS 1
3	LTS 3	LTS 2	LTS 1	LTS 1
4-5	LTS 4	LTS 3	LTS 2	LTS 1
6+	LTS 4	LTS 4	LTS 3	LTS 2

### Adjustment Factors

- Low volume residential streets with 1-2 lanes – Lower 1 LTS
- Buffers for multi-use paths to be measured at centerline of the pathway.

This can be mitigated and made LTS 1 with a vertical barrier, which needed for shared use pathways when <5 ft from top of curb (see AASHTO Bike Guide). See VMP bridge, West Parkcenter Bridge for local examples.

- Buffer is only hardscape and/or bike lanes – Add 1 LTS
  - Low Parking Utilization with no landscaped buffer & no bike lane – Add 1 LTS
  - Landscaped buffer has trees – Lower 1 LTS (incentive to cities)
- OR
- Landscaped buffer with no vertical elements – Add 1 LTS

Rose Hill, Latah,  
Roosevelt, Northview,  
Garrett, ITD's Broadway

Video showing differences in only bike lane and hardscape buffer vs. tree and landscaped buffer:

- <https://www.youtube.com/watch?v=JXGgIsmFTnA>

## SIDEWALK WIDTH AND CONDITION

Actual Sidewalk Width	Sidewalk Condition			
	Very Good	Good	Fair	Poor
<4'	LTS 4	LTS 4	LTS 4	LTS 4
4'	LTS 3	LTS 3	LTS 3	LTS 4
5'	LTS 2	LTS 2	LTS 2	LTS 4
6'+	LTS 1	LTS 1	LTS 2	LTS 3

### Adjustment Factors

- Low volume residential streets with 4'-5' sidewalk – Lower 1 LTS
- 5' detached sidewalk in very good or good condition – Lower 1 LTS

- Driveways with cross slope >2% – Add 1 LTS

Clarify. Does "5' detached" mean the buffer is at least 5-feet wide or does this mean any 5' wide sidewalk with any type of buffer?

## UNSIGNALIZED CROSSINGS

Speed Limit	Total Travel Lanes Crossed At One Time		
	1-3 Lanes	4-5 Lanes	6+ Lanes
20-25	LTS 1	LTS 2	LTS 4
30	LTS 1	LTS 2	LTS 4
35	LTS 2	LTS 3	LTS 4
40+	LTS 3	LTS 4	LTS 4

### Adjustment Factors

- No Illumination Present – Add 1 LTS
- Adding a Rectangular Rapid Flashing Beacon – Lower 1 LTS
- Pedestrian refuge medians of at least 8' with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.

To qualify for this lower LTS, an RRFB on a street with 3 or more lanes must have a median.

### Add

- Ramps and pushbuttons inaccessible based on inventory – Add 1 LTS (makes consistent with signalized intersections)

Needs more specifics to ensure illumination aligns with FHWA guidance, as direct overhead lighting is not sufficient.

Reference:

<https://www.fhwa.dot.gov/publications/research/safety/08053/>

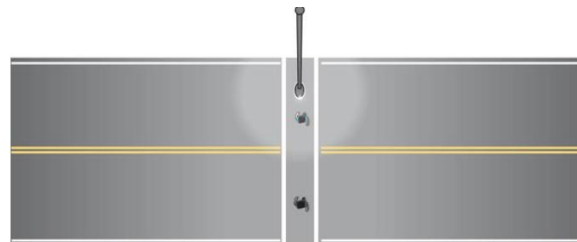


Figure 11. Drawing. Traditional midblock crosswalk lighting layout.

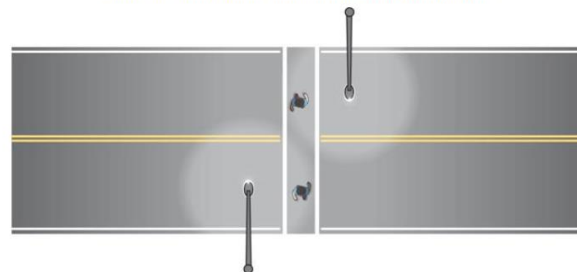


Figure 12. Drawing. New design for midblock crosswalk lighting layout.

## SIGNALIZED INTERSECTIONS AND CROSSINGS

Intersection Features	Total Lanes Crossed At One Time			
	1-3	4-5	6-7	8+
PHB or Ped Signal	LTS 1	LTS 2	LTS 4	LTS 4
Signalized Intersection	LTS 1	LTS 2	LTS 3	LTS 4

*See additional attachment and video on other necessary LTS measures at signalized intersections.*

### Adjustment Factors

- Ramps and Pushbuttons Inaccessible per Inventory – Add 1 LTS
- Pedestrian refuge medians of at least 8' with a vertical element would reduce the total number of lanes crossed at one time to the distance from curb to median.
- Signal includes refuge island with signal timed to require someone walking slower than 4.0 ft/sec to make a multi-phase crossing – Add 1 LTS
- Signal includes Leading Pedestrian Interval (LPI) – Lower 1 LTS
- Right Turn on Red permitted – Add 1 LTS
- **Note: The Ramp inventory is not accurate.** Many curb ramps marked as compliant in the ACHD inventory are not compliant. If systemwide analysis is done, then inventory may be fine. If individual corridor or intersection is the subject of analysis, then field verification must be conducted instead of relying on inventory.
- *How are total lanes crossed calculated for intersection where ACHD prohibits pedestrians crossing one leg of an intersection? If I want to cross the west leg of Meridian Road and Franklin, I must cross 3 legs and 13 lanes just to cross to the other side of the street.*

## ROUNDBABOUTS

Lanes Crossed	LTS w/o Enhanced Crossing	LTS w/ Enhanced Crossing
1	LTS 2	LTS 1
2+	LTS 2	LTS 1

- Roundabout Bypass Lane – Add 1 LTS

**Reference:**

**NCHRP Report 672. Roundabouts: An Informational Guide (2010)**

- "A right-turn bypass lane (or right-turn slip lane) should be implemented only where needed, especially in urban areas with bicycle and pedestrian activity. The entries and exits of bypass lanes can increase conflicts with bicyclists and with merging on the downstream leg...The generally higher speeds of bypass lanes and the lower expectation of drivers to stop may increase the risk of collisions with pedestrians. They also introduce additional complexity for pedestrians with visual impairments who are attempting to navigate the intersection." (Page 6-78)

[https://mdotcf.state.mi.us/public/tands/Details\\_Web/nchrp\\_rpt\\_672-%20fed%20roundabout%20guide.pdf](https://mdotcf.state.mi.us/public/tands/Details_Web/nchrp_rpt_672-%20fed%20roundabout%20guide.pdf)

## SIGNAL DELAY & CROSSING TIMES

Posted Speed	Peak Hour Signal Cycle Length				
	<60 sec	60-90 sec	90-120 sec	120-150 sec	> 150 sec
<=25	LTS 1	LTS 1	LTS 2	LTS 3	LTS 4
30	LTS 1	LTS 2	LTS 3	LTS 3	LTS 4
35	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4
40+	LTS 2	LTS 3	LTS 4	LTS 4	LTS 4

Note: Peak to be consistent with peak hour LOS practices for motorists.

- PHB or Full Signal Synchronized with other Traffic Signals for motor vehicle flow – Add 1 LTS
- PHB or RRFB has Z-crossing median – Lower 1 LTS
- Any arterial or collector crossing spacing > 1,800 ft is LTS 4.

### Reference Documents:

#### Federal Highway Administration. Capacity Analysis of Pedestrian and Bicycle Facilities.

- Table 18: Recommended *HCM* pedestrian Level of Service (LOS) criteria for signalized crossing delay

As noted in video, I don't think an average calculation of pedestrian delay is anticipated in terms of ACHD's counting pedestrians at each intersection. That is why the LTS table above is based on cycle lengths, which ACHD should be able to easily obtain from its Congestion Management Department

TABLE 18 Recommended *HCM* pedestrian Level of Service (LOS) criteria for signalized crossing delay.

LOS	Average Delay Per Pedestrian(s)	Likelihood of Pedestrian Noncompliance
A	< 10	Low
B	20-Oct	-
C	20-30	Moderate
D	30-40	-
E	40-60	High
F	60	Very High

## SIGNAL SPACING

Crossing Type	Posted Speed	Spacing			
		< 300 ft	300-600 ft	600-1200 ft	1200 ft – 1,800 ft
Full signal	<30	LTS 1	LTS 1	LTS 2	LTS 2
	>=30	LTS 1	LTS 1	LTS 2	LTS 3
PHB	<30	LTS 1	LTS 1	LTS 2	LTS 3
	>=30	LTS 2	LTS 2	LTS 2	LTS 4
RRFB	<30	LTS 2	LTS 2	LTS 3	LTS 4
	>=30	LTS 3	LTS 3	LTS 4	LTS 4
Marked Crosswalk Only	<30	LTS 3	LTS 4	LTS 4	LTS 4
	>=30	LTS 4	LTS 4	LTS 4	LTS 4

- PHB or Full Signal Synchronized with other Traffic Signals for motor vehicle flow – Add 1 LTS
- PHB or RRFB has Z-crossing median – Lower 1 LTS
- Any arterial or collector crossing spacing > 1,800 ft is LTS 4.

Local example for justification: Fairview and Ustick between Cole and Milwaukee: <https://www.youtube.com/watch?v=nTksY4azBEw>

Reference Documents, both endorsed by FHWA in August 2013 memo:

- [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/design\\_flexibility.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_flexibility.cfm)

**AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004):**

- “Pedestrians must be able to cross streets and highways at regular intervals. Unlike motor vehicles, pedestrians cannot be expected to go a quarter mile out of their way to take advantage of a controlled intersection.” (Page 81)

**ITE Designing Walkable Urban Thoroughfares (2010):** <https://www.ite.org/pub/?id=e1cff43c%2D2354%2Dd714%2D51d9%2Dd82b39d4dbad>

- Protected Pedestrian Crossing Frequency – Walkable Thoroughfares: 200-600 ft; Vehicle-Oriented Thoroughfares: As needed to accommodate pedestrian demands. (Page 68)
- “Pedestrian facilities should be spaced so block lengths in less dense areas (suburban or general urban) do not exceed 600 feet (preferably 200 to 400 feet) and relatively direct routes are available. In the densest urban areas (urban centers and urban cores), block lengths should not exceed 400 feet (preferably 200 to 300 feet) to support higher density pedestrian activity.” (Page 32)

## Ryan Head

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**Subject:** FW: Bike lanes counting as pedestrian buffer in LTS

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**From:** Don Kostelec

**Sent:** Friday, June 4, 2021 2:19 PM

**To:** Ryan Head

**Subject:** Bike lanes counting as pedestrian buffer in LTS

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Do you recall what the discussions were around the LTS counting bike lanes the same as trees in terms of buffer and reducing level of traffic stress? It was an uphill battle against Bruce Mills during the LSDG efforts to help make sure bike lanes were not considered buffers in the same way as tree-line buffers. In looking at the current LTS, they don't appear to distinguish between them.

Essentially, pedestrian LTS is viewed the same in the examples below because a tree-lined buffer is treated exactly the same as a bike lane with no buffer and a narrow paved buffer with bike lane is treated the same as a tree-line buffer. I just don't see how that is considered an equivalent in terms of how a pedestrian experiences that street. I think a bike lane-only buffer needs to knock LTS down a notch or two and only landscape buffers get a higher score.

Another way to look at it would be worse LTS when there is no landscaped buffer on a road with speed limits greater than 25 mph, as FHWA and AASHTO note that curbing is not sufficient to keep a motor vehicle from mounting the curb at speeds greater than 25 mph. In the top image example, a pedestrian is still protected. There is no such protection in the bottom two examples and the bike lane space is likely not enough for a motorist to decelerate in that five feet from a 40 mph posted speed limit to the 25 mph to keep from mounting the curb.

I think there should be a bonus point for tree-lined buffers, which would give ACHD some negotiating power with cities. Want a better LTS? Then help us with some tree costs and maintenance. I think that's a reasonable thing to do given the current policy environment.





## Ryan Head

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**Subject:** FW: LTS Comments: Consideration of bicycle/pedestrian delay is missing

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**From:** Don Kostelec

**Sent:** Friday, June 4, 2021 1:27 PM

**To:** Ryan Head

**Subject:** LTS Comments: Consideration of bicycle/pedestrian delay is missing

FYI - Below is what I sent to several committee members and ACHD staff on pedestrian and bicyclist delay back in February. The current LTS has nothing for pedestrian and bicyclist delay, which is discouraging that it's absent in the LTS model. I fear that without any delay element there will never be the ability to compare or evaluate tradeoffs in motorist delay and the delay traffic signals cause for pedestrians and bicyclists. ACHD can still engineer an intersection with massive pedestrian delays and a corridor with long distance between crossings, but as long as there's a median and a buffer, in addition to wider sidewalk, it will be viewed as a great LTS.

I wish I knew why this was not considered or not included in the LTS analysis. Without a comparable delay function there is no way to evaluate tradeoffs when traffic engineering decisions are made.

The two tables I included in this original email from February include one for bicyclist delay and another for pedestrian delay. That's what needs to be added, as a start.

When a pedestrian has to walk 1/2-mile to out of their way to get to a protected crossing, that's add traffic stress in terms of additional driveway crossing and intersections the pedestrian has to cross.

These would be easy additions and I'd love to hear if they were ever presented to the advisory committees or if they were deemed not applicable for this exercise.

As I noted with the State/Pierce Park study, ACHD can still put pedestrians in unsafe situations at intersections to prioritize motorist LOS and as long as ACHD does a sidewalk buffer, a wide sidewalk, and a median, it will be viewed as a great LTS even when the LTS in trying to cross puts pedestrians in direct conflict with motorists

----- Forwarded message -----

**From:** Don Kostelec

**Date:** Mon, Feb 1, 2021 at 10:40 AM

**Subject:** Consideration of bicycle/pedestrian LOS at signalized intersections

**To:** Ryan Head

Hey BAC folks -

I can't make today's meeting to provide some public comment so I wanted to put this idea on your plate as the subcommittee continues to work toward the bike/ped performance measures.

In looking through today's BAC packet I saw a summary of an initial conversation and the overall effort is moving at a really good pace. Something I'll call your attention to is the impact on bicyclists and pedestrians due to signal timing and related delays at intersections. I did not see reference to this in the packet summary.

Signal delay is important to consider in how ACHD conducts its traffic analysis as part of intersection or corridor design efforts as well as through what developers submit for traffic studies. It goes beyond the physical attributes that are the focus of the summary published in your packet and gets into the operational factors at signals.

The topic of intersection delay and its impacts on bicyclists and pedestrians dates back to at least the 1990s when bike/ped level of service was being explored for incorporation into the Highway Capacity Manual, which agencies like ACHD and ITD use extensively, in some form or another, to evaluate and model motorist level of service.

The first image below relates to control delay for bicyclists at "interrupted bicycle facilities," which would be signalized intersections.

- <https://www.fhwa.dot.gov/publications/research/safety/pedbike/98108/chapter3.cfm#tab6>

The second table below is related primarily to pedestrians, but I strongly believe it applies to bicyclists who are sharing routes or crossings with pedestrians and the move toward more sidepaths on roadways means bicyclists will be subject to the same traffic controls as pedestrians. It is labeled as Table 18 and is from this publication from the Federal Highway Administration's Office of Safety.

- <https://www.fhwa.dot.gov/publications/research/safety%20pedbike/98107/section3.cfm>

To break it down, it states that an average delay of 40 seconds or greater leads to a Level of Service E or F for pedestrians (and bicyclists using the same facilities to cross). The result is "high" or "very high" noncompliance (e.g. crossing against the signal).

A couple places you see this science in action as a pedestrian or bicyclist is the intersection along Front Street at 8th and on Capitol at Grove. It also occurs at the Pedestrian Hybrid Beacon installed at River Street and the Pioneer Pathway and the same signal type on the BSU campus at University and Chrisway.

You see this "high" and "very high" noncompliance occur when vulnerable road users wishing to cross choose to shoot the gaps in the traffic due to excessive delay of the signal, which is programmed to coincide with signal timing for motorists. The result is large gaps in motor vehicle traffic.

The outcome of this could result in a pedestrian or bicyclist being hit by a motorists. It's simply the science of the human brain and the exposure that bicyclists and pedestrians have to the elements that are not felt by motorists. Unfortunately, police investigations do not examine the role signal timing and related traffic engineering decisions induce people into shooting those gaps. FHWA spells it out nicely in their reports, as you'll see in the Table 6 example below that these delay thresholds are less than the time considerations for motorists because "bicyclists are exposed to the elements."

Yes, this is in the weeds a bit because these are quantitative measures, but they are also the measures that begin to put bike/ped measures on par with what is the routine practice to evaluate motorist level of service in project design, signal timing, and traffic studies. I'm guessing there are more recent studies on this to incorporate into the final policy recommendations of the ACHD effort. A local study might even find that Boise-area pedestrians and bicyclists make these decisions at lower thresholds of delay due to winter conditions or those triple-digit days we get in summer.

I encourage you to think about these delay factors as you experience the system on foot or by bike. I think you'll find that they are in line with science and human psychology. I hope you'll take this into consideration as you provide additional input to the process.

Thank you,  
Don Kostelec

It is then recommended that the LOS be determined based on control delay, as shown in Table 6. These values are taken from the unsignalized chapter of the HCM. These are lower than the values in the signalized chapter for motor vehicles. However, lower delays are justified because bicycles are exposed to the elements.

**TABLE 6 Level of Service (LOS) for interrupted bicycle facilities**

LOS	Control delay (s)
A	< 5
B	< 10
C	< 20
D	< 30
E	< 45
F	> 45

SOURCE: Adapted from TRB, 1994.

At most signalized intersections, the only delay to through bicycles is caused by the signal itself because bicycles have the right of way over turning vehicles during the green phase. One possible exception is at signalized intersections, which force bicycles to weave with right-turning motor vehicle traffic on the intersection approach. This could cause additional delay to bicycle traffic at high motor vehicle volumes, although there is a lack of prior research in this area to confirm this effect. The research team was unable to effectively study the potential for a weaving effect due to a lack of suitable locations in the United States, as reported in the *Research Report* for this project (Rouphail et al., 1997). Therefore, at this time, it is impossible to make any recommendations as to the additional delay that may be caused by weaving-type configurations.

**TABLE 18 Recommended HCM pedestrian Level of Service (LOS) criteria for signalized crossing delay.**

LOS	Average Delay Per Pedestrian(s)	Likelihood of Pedestrian Noncompliance
A	< 10	Low
B	20-Oct	–
C	20–30	Moderate
D	30–40	–
E	40–60	High
F	60	Very High

## Ryan Head

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**Subject:** FW: Tell Us 21-01519 - Draft - Livable streets performance measures - Open

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**From:** Tellus <Tellus@achdidaho.org>

**Sent:** Friday, June 4, 2021 8:39 AM

**To:** Ryan Head

**Subject:** Tell Us 21-01519 - Draft - Livable streets performance measures - Open

A Tell Us submission was received on 6/3/2021.

TellUs Request: 21-01519

From: Michelle Woodmansee

Subject: Draft - Livable streets performance measures

Category: Other

Point of Reference: I'm an avid road cyclist as well as a motorist

Location/Intersection:

Date and Time Occurred:

Issue: With regard to the above referenced draft, the Level Of Service for drivers is indicated to be the "Level E - Large Delays." I'm unclear as to whether this is what the minimum goal is or if this is what ACHD feels is the current level of service. If it is the latter, I am in agreement. If it is the former, I sure wish ACHD would make the "worst case goal" a Level D. Aim high!

In reference to the Measurements For Bicyclists, I agree with your general assessments for Level of Stress for cyclists. If I may comment, I see that one of your ongoing efforts is to select and acquire sweeper equipment for protected bike lanes. I love this. I ride the Cloverdale bridge area over I-84 all the time and it's amazing how much debris is accumulated in that area. Last summer I not only flattened out 5 times on Cloverdale between Overland and Fairview but these were flats that were so ghastly I literally needed to replace the tire completely. Goat heads do not do that kind of damage. Also, I really enjoy the raised bike lane and the separation it provides from traffic. However, I'm sure you have your reasons for making it concrete, but asphalt is much preferable to the concrete. The joints between the sections can really become a problem over time (not to mention they're just hard on the backside) and if it's a windy day and I'm dealing with the huge, uneven joints & trying to stay upright with the wind it's just one more thing tipping the scale to going sideways.

It is my experience that most drivers (here in the Treasure Valley) are generally quite courteous and provide a little extra room as they pass if I'm on a road where there is no bike lane or shoulder (like those with the white line that dies off the pavement here & there). But if there is a bike lane, drivers feel that the cyclist needs to be in the middle or far to the right of that lane and they tend to get quite annoyed/aggressive if I have to ride closer to the white line because of debris. These areas, in my opinion, are often more dangerous than the two lane country roads with no shoulder. Often, these areas are located by landscaping businesses and around corners of larger intersections and by the railroad tracks. The area on Cloverdale by the train tracks where ACHD has a yard is a prime example!

One last piece of input: when chip sealing the roads, if there is a bike lane or a very wide shoulder is it necessary to chip

seal all the way through the bike lane and the shoulder? You might consider saving some money on materials and labor and having the chip sealing only go to the white line. This is how Meridian Road south of Overland was chip sealed before it was repaved. It's really nice on a cyclist's bottom to have smoother pavement and if it saves ACHD money at the same time - win, win. Thank you for your time.

Department Assigned: Planning and Projects

## Ryan Head

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**Subject:** FW: Livable Streets Performance Measures

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**From:** B. Crea

**Sent:** Wednesday, May 26, 2021 8:47 AM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Livable Streets Performance Measures

Dear ACHD Commission,

The stress level goals outlined for bicyclists and pedestrians in the proposed make me hopeful that safety will finally be visibly prioritized for families like mine who want to walk and bike — but I want to know where these improvements will be made.

Living near Eagle Road has substantially increased my stress as a motor vehicle driver, a pedestrian and a cyclist. The design and management of this deadly road has also created distrust in ACHD's standards for safety— which is worsened each time I witness the weekly health risks caused by its ratio of high speed limits to sudden intersection stops, dangerously places u-turn and left-hand turn lanes, overwhelmed intersections, and utter lack of safe or consistent passage for pedestrians and cyclists. I cringe every time I see an adult or child walking or biking on this roadway because of the number of unsafe car-human interactions I have seen, totally regardless of designated cross walks. This reality has resulted in my family walking and biking less, using our local parks less, and visiting neighboring businesses less because of the lack of safe walkable/bikable access.

Will the livable streets performance measures actually improve safety for, and decrease the number of injuries and deaths suffered near and along, Eagle Road? Because that is what we actually need and what is overdue.

Thank you.  
Britt Crea

## Ryan Head

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**Subject:** FW: Tell Us - Feedback on Livable Streets performance measurements

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**From:** Laser Fiche <Laserfiche@achdidaho.org>

**Sent:** Thursday, May 20, 2021 4:22 PM

**To:** Ryan Head

**Subject:** Tell Us - Feedback on Livable Streets performance measurements

A Tell Us Form has been dispatched to you for action. Please take action and submit to your department admin.

A Tell Us submission was received on 5/17/2021 1:10:30 PM

Tell Us Request: 21-01342

From: Aaron Price

Subject: Feedback on Livable Streets performance measurements

Category: Other

Point of Reference: Victory Rd

Issue: Good afternoon,  
I have reviewed the Draft Livable Streets Performance Measures doc.  
I am a frequent cyclist around the Treasure Valley.

I agree with the majority of the cycling LTS assessments. I feel the LTS should increase quicker for mixed traffic situations as the speed increases.

Specifically, I feel 2-way street for 35mph should be a LTS4 at an average traffic level of 3000+. Busy, two way streets with no centerline are incredibly stressful. A good example is Victory Rd. between Cloverdale and Five Mile roads. (screenshot attached)

Thank you for the opportunity to review and comment. Happy to assist in any other way if needed.

Department Assigned: Planning and Projects

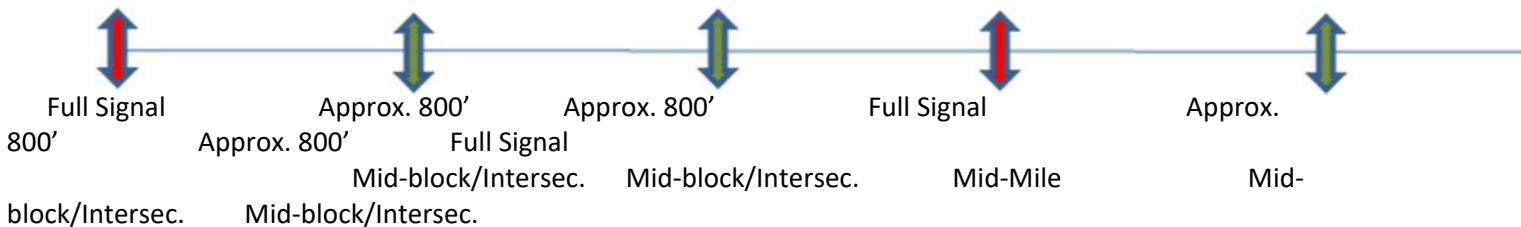
## Ryan Head

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**Subject:** FW: Ped LOS

**From:** Chris Danley  
**Sent:** Wednesday, May 19, 2021 9:48 AM  
**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>  
**Subject:** Ped LOS

Ryan,  
Hope you and yours are well. My biggest comment on Ped LOS has to do with route directness and crossings. Without more direct route crossings of streets, much of the balance of pedestrian infrastructure is irrelevant as most walking trips include street crossings. Meaning, if a person cannot access a marked, and possibly (ped) signalized crossing at regular intervals, they will likely forgo the entire trip by foot and drive instead as the major street acts as a wall. Research shows 600 crossing intervals in urban settings is about the maximum as pedestrians rarely walk farther than 300' to access a crosswalk. In a typical arterial setting, this means adding at least four additional crossings (whether at intersections of mid-block) if we assume fully signalized bookends at the mile, and likely a signalized mid-mile intersection. That means 800'+ spacing in between (still exceeds guidance, though perhaps a compromise). Somehow, asking a person to walk out of their way more than a few hundred feet has to be accounted for. While an unmarked crosswalk is equal in legal standing as per Idaho law to a marked crosswalk, unmarked crosswalk have virtually no effect on drivers and compliance is virtually non-existent. We measure connectivity of a given section or proposed subdivision, measuring a roadway segment for crossing opportunities should also be considered. Thanks, hope this makes sense.



Regards,

**Chris Danley**  
967 East Parkcenter Blvd. #180  
Boise, Idaho 83706  
208.570.3561



## Ryan Head

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**Subject:** FW: Tell Us - Bicycle and Pedestrian Stress survey

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**From:** Laser Fiche

**Sent:** Tuesday, May 18, 2021 1:04 PM

**To:** Ryan Head

**Subject:** Tell Us - Bicycle and Pedestrian Stress survey

A Tell Us submission was received on 5/18/2021 6:54:44 AM

Tell Us Request: 21-01353

From: Jennifer A Pedrali

Subject: Bicycle and Pedestrian Stress survey

Category: Other

Point of Reference: Entire Greenbelt & any bicycle lane in Boise Metro

Issue: I'm providing feedback on the Stress survey. Having biked everywhere in Ada, Canyon Co, Gem, Blaine, etc. in my opinion, there's a lot to be done to protect bicyclists and pedestrians.

In the heavily traveled streets, it is imperative for safety that bike lanes are either raised or protected from traffic by barriers. There are too many people in Ada and Canyon county now who drive without regard to anyone's safety - be it driver, pedestrian OR bicyclist. These single best thing ACHD could do, would be to take the Greenbelt and widen it, use concrete for the entire length, and designate a bike lane and a pedestrian lane along it. It becomes a free for all when pedestrians (also with kids and dogs) have no clue that they are actually on a path used by bicyclists. I have started taking back streets cutting through neighborhoods because currently the streets even with bike lanes are NOT safe. Then when I get to the Greenbelt, depending on the section, pedestrians make it a nightmare for those trying to travel by bike. I've had more accidents on the GB where adults let their kids and dogs run round, unsupervised, or where the adults think they can just STOP and look at the view, not realizing if they did that very think on a road, they'd be in a serious accident. PLEASE EDUCATE PEDESTRIANS using the GB!

Department Assigned: Planning and Projects

## Ryan Head

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**Subject:** FW: Bicyclist Stress Level  
**Attachments:** Truckee-Bike-3.jpg

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**From:** J. Landrum  
**Sent:** Monday, May 17, 2021 4:51 PM  
**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>  
**Subject:** Bicyclist Stress Level

I can only speak on my own experience here during the time I have been in Ada county. I often find that when some roads have a bike lane set aside for it, it often just stops and then suddenly you have to navigate an area of tight traffic unexpectedly. I would love to really see more of a paved path that is at least 10 ft wide that is away from most highway roads that will connect riders to points of interest. There is a trail that was done in the Reno-Tahoe area that I am including an image of it as an example. You can park at where it begins and ride for miles to reach the lake and enjoy a lunch and ride back all on a safe trail away from vehicles.

Thanks,  
J. Landrum



## Ryan Head

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**Subject:** FW: Livable streets

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**From:** [rmotooka@netscape.net](mailto:rmotooka@netscape.net) <[rmotooka@netscape.net](mailto:rmotooka@netscape.net)>

**Sent:** Monday, May 17, 2021 4:04 PM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Livable streets

Please, please, please keep bike's off of the streets. Walkers are much more manageable and less erratic than bicycles for drivers. Thank you very much.

## Ryan Head

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**Subject:** FW: Livable Streets Performance Measures

From: Geoffrey Bauchman  
Sent: Monday, May 17, 2021 2:22 PM  
To: Projects <projects@achdidaho.org>  
Subject: Livable Streets Performance Measures

ACHD,

I disagree with measure right now aimed at a small minority of the local community. The majority of current Treasure Valley residents primary use of our surface streets is via vehicular traffic.

Our current budget is better served upgrading surface streets to bring the current LOS for vehicles down. I find it unacceptable that a level of 'E' is the accepted norm for traffic.

Please redirect these find to surface Street widening, HWY improvement, stop light installs, crosswalks and other forms that will improve traffic flow.

Thanks,

Geoffrey Bauchman  
Meridian, ID

Sent from my iPhone

## Ryan Head

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**Subject:** FW: Measuring Level of Traffic Stress for Bicyclists & Pedestrians

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**From:** MJ3 Productions

**Sent:** Monday, May 17, 2021 1:46 PM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Measuring Level of Traffic Stress for Bicyclists & Pedestrians

I have lived in Boise for 30 years and drive a vehicle, ride various bikes and walk for different reasons around Boise. While your measurement might do something, I do not believe it addresses the real issue which is a combination of new horrible vehicle drivers and cyclists and inattentive pedestrians. I think the vehicle drivers are the worst because there are more of them and they are more dangerous to other people and pets.

My recommendation to you is to put your money and effort in to educating the new people to Boise to slow down, obey the traffic laws, stop riding people's bumpers, stop running lights and stop signs, stop passing cyclists on double yellow lines especially on a curve, stop cutting people off so badly they have to brake hard so they will not be in an accident through no fault of their own, stop honking at people obeying the law like not turning on a red light until it turns green (and there is a sign by the light saying so).

As for cyclists, please ask them to stop running red lights and stop signs especially when they are in a group with children, stop running over pedestrians on the roads and greenbelt, and stop trying to pass a vehicle from behind when they have been signally, they are turning for a while.

As for pedestrians, please ask them to stop walking across streets without looking at all, stop walking out in moving traffic, stop allowing their young children to cross streets without the parents being with them.

## Ryan Head

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**Subject:** FW: Measuring Traffic Stress for Bicyclists & Pedestrians - What Do You Think?

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**From:** Joe Jaszewski

**Sent:** Monday, May 17, 2021 8:51 AM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Re: Measuring Traffic Stress for Bicyclists & Pedestrians - What Do You Think?

Hello,

Thank you for working to evaluate the facility quality (LOS) for cyclists. I think it's really important to distinguish between various facilities and how well they serve people on bikes.

I think the metrics you propose in the draft are pretty good. In my experience, the "low stress" bikeways that ACHD has created in the past have not been low stress. Any time you're physically sharing space with cars who are travelling above 20MPH it's going to be stressful when you encounter them and they try to pass you, etc.

For my purposes, "low stress" would be a completely separated and protected bike lane, or a shared street with cars travelling below 20MPH. An example of the latter would have been 8th Street before the city closed it to traffic. Anything short of that just isn't low stress.

Thank you again for your effort on this.

Best,  
Joe

## Ryan Head

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**Subject:** FW: Tell Us 21-01641 - Measure of Traffic Stress for Pedestrians and Bicyclists - Open

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**From:** Tellus <Tellus@achdidaho.org>

**Sent:** Tuesday, June 15, 2021 9:29 AM

**To:** Ryan Head

**Subject:** Tell Us 21-01641 - Measure of Traffic Stress for Pedestrians and Bicyclists - Open

A Tell Us submission was received on 6/14/2021.

TellUs Request: 21-01641

From: Deborah Mullner

Subject: Measure of Traffic Stress for Pedestrians and Bicyclists

Category: Other

Point of Reference: Orchard/Emerald

Location/Intersection:

Date and Time Occurred:

Issue: Orchard Street is unsafe for all users: Pedestrians, car drivers, and bicyclists are unsafe because there are no separations between the street, sidewalks (often nonexistent), and parking lots. Many bicyclist avoid the danger on Orchard Street by using the sidewalk (if existent).

Some people expect pedestrians and cyclist to use Garden Street instead of Orchard Street to get to Chinden Blvd. However, nobody expects car drivers to take a DETOUR OF 10 MINUTES to get to where they want. By the way, Garden Street is also unsafe for cyclist and pedestrians. There are no sidewalks and bike lanes and Garden Street is wide. Wide streets feel like a freeway therefore many car drivers speed as if they were driving on a freeway. Once I was walking on Garden Street with my daughter-in-law and my grandson and a car driver yelled at us: "get of the road, dummies". A street that is build just for car driving is perceived as a street that can only be used by car drivers.

On another note, as a Boisean tax payer I would appreciate if we could stop subsidizing the commuters from other towns in the County. Meridian has sidewalks while our neighborhood streets don't. Where the tax money goes is where the tax money is. The residents of my neighborhood also pay taxes, however there is no infrastructure in our neighborhoods to make our streets safer for pedestrians and bicyclists . Just last week I talked with a neighbor who is moving to Meridian. The reason for their move: The neighborhood they are moving to has sidewalks. They have two small children and always felt unsafe when going for a walk in our neighborhood here in Boise.

Department Assigned: Planning and Projects

## Ryan Head

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**Subject:** FW: Livable Streets Performance Measures

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**From:** Cynthia Gibson

**Sent:** Tuesday, June 15, 2021 10:09 AM

**To:** Projects <[projects@achdidaho.org](mailto:projects@achdidaho.org)>

**Subject:** Livable Streets Performance Measures

Below are the concerns and additions I have regarding the Pedestrian Level of Traffic Stress in the Livable Streets Performance Measures.

**Crossing Frequency** - Forcing pedestrians to walk long distances, especially along busy arterials, will not only increase stress but also reduce compliance and safety. My suggestion is to have more frequent crossings to improve the LTS score. Per the *ITE Designing Walkable Urban Thoroughfares*, guiding policy states that regular crossings should be no more than 600' apart (preferably 200 to 400 feet.) This fosters crossings at regular intervals and allows for no more than 300' in either direction.

More frequent crossings - High Comfort for All.

Fewer crossings - High Stress Experience.

**Signal Timing** - This should also be a LTS table and address whether there is adequate time for pedestrians to safely cross the street. Some of the considerations should be:

Minimum time allowed by MUTCD - High Stress Experience

Additional time allowed - High Comfort for Adults

Flashing Yellow Arrows overridden by pedestrians activating the button - High comfort for adults

Are motorists given more consideration during peak time by reducing the crossing time for pedestrians - High Stress Experience

**Crossing Distance** - When pedestrians are required to cross long distances, this exposes them to traffic violence for an extended period of time, thus putting the pedestrian in danger. Frequently, crossing distance can be shortened by curb extensions which would help reduce the distance and time for a pedestrian on all streets. This allows the pedestrian to safely step further out into the street to see around parked cars and get safely to the other curb.

Curb extension is present/shorter crossing distance - High Comfort for All

No curb extension present - High Stress Experience

Thank you,

Cynthia

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**Cynthia Gibson | Executive Director**

**Idaho Walk Bike Alliance**

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