CITY OF
ASHLAND

TRANSPORTATION COMMISSION

Thursday, July 15, 2010

Council Chambers, 1175 East Main Street

Agenda

I. CALL TO ORDER: 6:00 PM

II. APPROVAL OF MINUTES: June 17, 2010

III. PUBLIC FORUM

IV. ADJUSTMENTS TO THE AGENDA

V. ACTION ITEMS
- A. TSP Kickoff (30 minutes)
- B. Appoint 5 E's Subcommittee (5 minutes)
- C. Car Free Day (Ryan) (15 minutes)
- D. Forced Vote on Two Year Goals (10 minutes)
- E. CDBG Block Grant Update (15 minutes)
- F. Discussion/Definition on Shared Roadways (30 minutes)

VI. NON ACTION ITEMS
- A. MPO Update (Chapman) (5 minutes)
- B. Additional Bicycle Parking on Main Street Update (5 minutes)
- C. Regional Problem Solving Update (5 minutes)
- D. Interchange Area Management Plan (IAMP) (5 minutes) http://ashland.or.us/Page.asp?NavID=13166

VII. INFORMATIONAL ITEMS
- A. Subcommittee Minutes of July 1, 2010 (Draft)
- B. City Source Message
- C. Trauma Nurses Talk Tough

VIII. NEXT MEETING/SUGGESTED AGENDA TOPICS
- A. Faith Avenue / Highway 66 Intersection
- B. Signal Detector Retrofits to Accommodate Bike Detection
- C. Draft Three-Foot Zone of Protection Ordinance
- D. Budget Priorities for FY 11

IX. COMMISSIONER COMMENTS

X. ADJOURN: 8:00 PM

Next meeting scheduled for August 19, 2010 @ 6:00 pm

Note to Commissioners: Call Nancy Slocum at 552-2420 or slocumn@ashland.or.us if you can not attend the meeting.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Public Works Office at 488-5587 (TTY phone number 1 800 735 2900). Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to the meeting (28 CFR 35.102-35.104 ADA Title I).

CITY OF
ASHLAND

Transportation Commission

Contact List as of May 1, 2010

Name	Title	Telephone	Mailing Address	E-mail Address	Expiration of Term
Tom Burnham	Commissioner	482-4467	1344 Apple Way	ntburnham@gmail.com	4/30/2013
Steve Ryan	Commissioner	951-1409	1257 Siskiyou Bv #160	resolutionvideo@yahoo.com	4/30/2013
Brent Thompson	Commissioner	488-0407	582 Allison	brenttho@mind.net	4/30/2011
Julia Sommer	Commissioner	552-1942	1158 Village Square Drive	juliamsommer@gmail.com	4/30/2011
Colin Swales	Commissioner	488-0939	143 8th Street	colinswales@gmail.com	4/30/2011
Matt Warshawsky	Commissioner	488-0917	821 Indiana Street	ashland@azcotech.com	4/30/2012
Eric Heesacker	Commissioner		2360 Ranch Road	ashtranscomm@gmail.com	4/30/2012
David Young	Commissioner	488-4188	747 Oak Street	dyoung@jeffnet.org	4/30/2012
Steve Hauck	Commissioner	878-2702	453 Wightman Street	stephenhauck@yahoo.com	4/30/2013
Non Voting Ex Officio Membership					
Mike Faught	Director of Public Works Commission Secretary	488-5587	20 E. Main Street	faughtm@ashland.or.us	
David Chapman	council liaison	488-0152	390 Orchard Street	david@council.ashland.or.us	
Brandon Goldman	Planning	488-5305	20 E. Main Street	goldmanb@ashland.or.us	
Steve MacLennan	Police	552-2809	20 E. Main Street	maclenns@ashland.or.us	
Scott Hollingsworth	Fire	552-2932	20 E. Main Street	Hollings@ashland.or.us	
Larry Blake	Southern Oregon University	482-2564	1250 Siskiyou Bv	blakel@sou.edu	
	Ashland Schools				
Dan Dorrell PE	ODOT	774-6354	100 Antelope Rd WC 97503	Dan.w.dorrell@odot.state.or.us	
Kat Smith	RVTD	608-2423	3200 Crater Lake Av – 04	k.smith@rvtd.org	
	Ashland Parks		20 E. Main Street		
Jenna Stanke	Jackson County Roads		200 Antelope Rd WC 97503	stankeJS@jacksoncounty.org	
David Wolske	Airport Commission			david@davidwolske.com	
Eve Woods	Student Liaison	773-8515	920 W 11th Street #3 Medford OR 97501	Eve_woods@hotmail.com	
Staff Support					
Nancy Slocum	Public Works Clerk	552-2420	20 E Main Street	slocumn@ashland.or.us	
Jim Olson	Engineering Services Manager	488-5347	20 E. Main Street	olsonj@ashland.or.us	
Karl Johnson	Assistant Engineer	552-2415	20 E Main Street	johnsonk@ashland.or.us	

CITY OF
ASHLAND
TRANSPORTATION COMMISSION
Thursday, June 17, 2010
Council Chambers, 1175 East Main Street

Minutes

Attendees: Steve Hauck, Eric Heesacker, Steve Ryan, Julia Sommer, Colin Swales, Brent Thompson, Matt Warshawsky, David Young
Absent: Tom Burnham
Ex Officio Members: Brandon Goldman, Kat Smith, David Wolske
Staff Present: Mike Faught, Jim Olson, Nancy Slocum

I. CALL TO ORDER: 6:00 PM by Chair Eric Heesacker.

II. APPROVAL OF MINUTES:
Minutes of May 20, 2010 were approved as corrected.

III. PUBLIC FORUM:
Dave Wolske, Airport Commissioner, introduced himself as the newly created Airport Commission Ex Officio Member. His goal was to support air transportation as an important asset to Ashland and the Commission. The Commission welcomed his input especially during the Transportation System Plan (TSP) update process.

Kat Smith, 770 Faith, spoke regarding the recent skateboard fatality on her street. She said the Fire Department was very helpful debriefing the children and neighborhood after the accident. She reminded the Commission that the Parks Department and RVTD sponsored two skateboarding camps this summer. Smith also recounted a bicycle accident at the Morning Glory driveway access. She wondered how many bicycle accidents were not reported and suggested a public service announcement as well as other types of education. She suggested lobbying for bicycle safety questions (ie need to look right before turning right) on the DMV test and emphasized in their booklet.

IV. ADJUSTMENTS TO THE AGENDA:
No adjustments were made.

V. ACTION ITEMS:

A. Appoint Subcommittee Members and Chair
Chair Person Heesacker appointed Burnham as Chair Person of the Transportation Commission Subcommittee. Thompson and Ryan volunteered as subcommittee members for a term ending December 31, 2010.

B. Appoint Liaison to the Planning Commission
The Planning Commission meets the second Tuesday of the month beginning at 7:00 pm. The liaison would receive the list serve for the agenda, review it for transportation-related issues and attend the meeting if needed. Sommers volunteered.

Swales noted that 60-70% of this year's Planning Commission goals were transportation-related.

C. Bicycle Transportation Alliance (BTA) Funding Request for $2,700
Egon Dubois, BTA Instructor, commented on the recent skateboard fatality and three teens' reaction to it. They laughed. He noted some kids were risk takers and some were always careful. Education helped

those kids in the middle. Education also bred better drivers.

Since 2004, Ashland has never paid more than a third of the cost of education classes. Even if Commission allocates $2,700, BTA will still subsidize $15,750. Dubois said this money actually subsidized last year's classes.

Warshawsky noted that with this expense, 100% of the Commission's budget would be spent on bicycle safety.

Sommers wondered what the Parks Department did with the addition $1,700 that was not donated to BTA. Faught could not answer that question and reported that Scott Hollingsworth, Commission liaison with the Fire Department, was attempting to form a non profit organization to administer the bike swap and its funds.

Young wanted to make sure that the helmet and bicycle light supply was continually refurbished with Commission funds if needed.

Motion and Vote:
Young moved to allocate $2,700 to subsidize BTA's educational classes in Ashland. Hauck seconded the motion and it passed unanimously.

D. Develop Two Year Commission Project List
Last month the Commission requested time to develop a list of citywide projects related to Commission Goal #2 (identify and work to implement specific transportation safety projects or objectives that could realistically be completed within the next two years while the TSP was in process). Staff compiled the following list from previous meetings and individual correspondence from Commissioners:

1. Faith Avenue / Highway 66 Intersection improvements.
2. Research signal detector retrofits to accommodate bike detection
3. Research options to help the blind locate the pedestrian crossing buttons at traffic signals.
4. Audible signals for downtown and SOU.
5. Discuss pros and cons to relocating bike racks from sidewalk to street.
6. B Street pedestrian amenities.
7. Possible adoption of a 3' Bicycle/Pedestrian Protection Zone fashioned after Grants Pass ordinance.

Sommers suggested prioritizing them using "forced choice" after a list was compiled. Ryan asked for additional time to think about items for the list.

Young asked the status of the audible signals? Olson reported that block grant money might be available. He estimated $15,000 would be necessary or $3-4,000 per intersection.

Young requested the status of the crosswalk at Highway 66 and YMCA Way. ODOT reported to Staff that the intersection would not meet warrants as there is not an adequate pedestrian count nor a center median. Thompson would continue to advocate for pedestrian amenities similar to Siskiyou Boulevard.

Warshawsky asked the status of the Handyman proposal on Highway 66. Olson said the proposal fell through, but that any future proposal would require a Traffic Impact Analysis (including an access control study) for the area. Swales reported that traffic counts were decreasing and creative solutions such as a road diet should be considered. Olson said a design plan from 1973 showed a center median. The Faith/Highway 66 intersection fell under the City's jurisdiction. Businesses are historically against addition access closures. Faught recommended delaying decisions until options were reviewed during the TSP update. It could be beneficial to look at the system as a whole.

Sommer asked when the B Street structural reconstruction project might be funded. Faught said funding street overlays had first priority, reconstructions were last in order to maintain the structural integrity of the transportation system.

Other Commissioner suggestions for two year goals:

- Ban left hand turns on red lights onto a one-way road
- Make Will Dodge Way more multimodal, including ADA
- Evaluate delivery vehicle patterns in the downtown core
- Add railroad crossings for pedestrian access
- Making a left from Ashland Mine Road to North Main is difficult; crossing four lanes, no refuge lane, traffic speed 35-45 mph

Heesacker recommended that, since meeting was short on time, the list be prioritized by forced choice vote at next meeting.

Egon Dubois liked the idea of a long list, but noticed list included infrastructure projects only, no education. Recommended the "Share the Road" Pledge Campaign.

- Lobby for DMV test questions regarding "vulnerable roadway users"
- Add Central Ashland Bike Path elements to Highway 66 overpass

Motion and Vote:
Ryan moved to allow Commissioners additional time to list items before the next meeting. Motion died for lack of second.

Hauck moved to end discussion and prioritize list using forced choice method at the July Commission meeting. Thompson seconded the motion and it passed unanimously.

E. Policy for Establishing Shared Roadways
Olson reminded the Commission of their objective to establish a policy that defined and designated streets as "shared roadways." Earlier Chapman noted a distinct difference between a "shared road" versus a road that included "sharrows." (Chapman could not attend the meeting.) Faught noted that a shared road included all forms of transportation, while a sharrow was essentially a bicycle-only lane. Perhaps a policy for both instances was needed.

Ryan wondered about the cost of designating a road as shared.

Young said one reason Oak Street received sharrows was that Oak was a connector from the Central Ashland Bikeway to the Greenway. Smith noted that Helman Elementary School parent surveys showed that Helman and Laurel Streets should have bike lanes or sharrows. Faught recommended signing the greenway to designate the agreed upon preferred route. Staff promised to give the Commission additional information at a later time.

VI. NON ACTION ITEMS

A. TSP Update
The Intergovernmental Agreement with ODOT was finally approved. Monday, June 28th was the scheduled kickoff meeting with Staff and the Commission Chair. Staff hoped to save approximately $40,000 by reducing the number of meetings and/or holding teleconferences.

B. RVTD - Car Free Day
Kat Smith, RVTD Transportation Options Coordinator, asked the Commission to spearhead the organization of Car Free Day. The volunteer(s) would coordinate other volunteers, notify

businesses, manage the budget, work with RVTD, arrange for the banner and the street closure, etc. If no one volunteered the event would not happen. There was a hope to increase business involvement. Commissioner Ryan volunteered.

The event was scheduled for September 22, 2010 from 4:00 pm to 7:00 pm. Swales and Sommer volunteered to help Ryan. Money for the event would be discussed along with the Commission budget as a whole at the next meeting.

C. Downtown Plaza Parking Configuration

Faught updated the Commission reporting that he had the traffic engineer consultant review the design. The engineer recommended rather than removing Space #10 as the Commission previously approved that a bulb out be constructed adjacent to it. Council approved the redesign. Swales wanted to confirm that the storm drain in front of Mix Sweet Shop would be improved. Warshawsky was concerned that there would be no extra bike parking.

Faught invited the Commission to the Subcommittee meeting July 1st where they would be tour bike parking in the downtown core. The goal would be to increase bike parking.

D. Discussion on How the Bike Swap Could Be More Successful

Faught reported ideas from the Subcommittee: removing Parks Department management to allow an increase in the amount of donation to BTA; increase the hours of sale; encourage bike shops to join, increase the percentage of sale kept and have a minimum dollar amount. Faught suggested a representative from the Commission join the Bike Swap Committee. Chapman volunteered.

VII. INFORMATIONAL ITEMS & COMMISSIONER COMMENTS:

- Swales email regarding Commission's lack of involvement in the Regional Problem Solving process - Thompson explained that proposed density was too low to support all forms of transportation. Thompson volunteered to give an update at the next meeting.
- Ryan's list of personal goals - Ryan said most of his goals could be addressed at the Subcommittee level; the others could wait.
- Philip Krayna's email regarding chaining bikes to sign posts as inadequate bike parking - Staff would respond to his email. Commission emphasized the need for education and signage. Need for an increase in bike racks in the street. Young thought that, in general, education and enforcement should be a larger priority. He suggested the need for a "5 E" Subcommittee. Chair made this a future agenda item.
- Warshawsky noted that Officer McLennan had an explanation on the wording of speed limit signs.
- Heesacker reviewed agenda items for next month: TSP Kickoff (one half hour); discussion of a 5 E Subcommittee, Car Free Day budget and planning; forced vote on two year goals; other budget issues.

VIII. ADJOURN: 8:01 PM

Respectfully submitted,
Nancy Slocum, Accounting Clerk I

Memo

CITY OF ASHLAND

Date: July 8, 2010
From: Nancy Slocum
To: Transportation Commission
Re: FINAL SELECTION OF TWO YEAR COMMISSION GOALS

Below is a list of two year goals outlined in the Commission memo dated June 17, 2010. To review, the Commission expressed a desire to create a 2 year project list related to our second goal to "identify and work to implement specific transportation safety projects or objectives that could realistically be completed within the next two years while the TSP is in process."

This list as well as the list generated at the June Commission meeting will be prioritized using forced choice at the July 15, 2010 meeting.

1. Faith Avenue / Highway 66 Intersection improvements.
2. Research signal detector retrofits to accommodate bike detection
3. Research options to help the blind locate the pedestrian crossing buttons at traffic signals.
4. Audible signals for downtown and SOU.
5. Discuss pros and cons to relocating bike racks from sidewalk to street.
6. B Street pedestrian amenities.
7. Possible adoption of a 3' Bicycle/Pedestrian Protection Zone fashioned after Grants Pass ordinance.

Goals suggested at the June 17, 2010 Transportation Commission meeting:

8. Ban left hand turns on red lights onto a one-way road
9. Make Will Dodge Way more multimodal, including ADA
10. Evaluate delivery vehicle patterns in the downtown core
11. Add railroad crossings for pedestrian access
12. Making a left from Ashland Mine Road to North Main is difficult; crossing four lanes, no refuge lane, traffic speed 35-45 mph
13. Lobby for DMV test questions regarding "vulnerable roadway users"
14. Add Central Ashland Bike Path elements to Highway 66 overpass
15. Grandview shared road improvements
16. Crosswalk at Ashland Street and YMCA Way

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Memo

CITY OF ASHLAND

Date: July 8, 2010

From: James Olson

To: Transportation Commission

Re: FINAL SELECTION OF A PROJECT FOR CDBG BLOCK GRANT FUNDING

QUESTION:
Will the Commission recommend to the Council a single project for Community Development Block Grant (CDBG) funding?

STAFF RECOMMENDATION:
Staff recommends that the Commission endorse and recommend to the City Council a single project to be funded through the CDBG Program. This project must meet the established criteria for funding as established under CFR 570.201(C), 570.207, and 570.208. The Commission's recommendation should relieve the Council of further dispute and should make clear which project will most likely meet the established funding criteria.

BACKGROUND:
At the May meeting of the Transportation Commission the selection of a suitable project for the $27,625.00 in CDBG funding, which the City Council allocated to Public Works, was discussed. (See attached memo of May 12, 2010.) At that meeting it was determined that the two projects suggested by staff: the audible signals in the downtown district and the completion of landscaping at the Northlight Development, both be submitted to Council for approval. However, in speaking with the City Housing Specialist who manages the CDBG Program, it became clear that the landscaping project would likely not meet the eligibility requirements of the grant.

As outlined in the attached memo of May 12th from the Housing Department, both of these projects would be to meet the "Limited Clientele" criteria of the Low to Moderate Income (LMI) National Objective in the following manner:

- The project to serve a group primarily presumed to be LMI such as abused children, battered spouses, elderly persons, severely disabled adults (blind), homeless persons, illiterate persons, persons living with AIDS and migrant workers.
- Being of such a nature and location that it may be concluded that the activity's clientele are LMI.

While the signal retrofit project would easily meet both of these criteria, the landscaping project would not. It would be difficult to state that the landscape project would

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specifically benefit the handicapped. It could easily be argued that adding trees and lights to the sidewalk area may even be detrimental to blind travelers and the improvement cannot exclusively benefit any one group of users.

Staff would like to approach the Council with a single project that has a very high probability of successful funding and that would target a very specific and definitive group of handicapped individuals.

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Memo

CITY OF ASHLAND

Date: May 12, 2010
From: James Olson
To: Transportation Commission
Re: PROPOSED USE OF CDBG FUNDS

Several months ago the Public Works Department received authorization to spend $27,623 from Community Development Block Grant (CDBG) funds to construct updated ADA sidewalk ramps on Iowa Street. This work was to be done following the street surface overlay on the same portion of Iowa Street under the ARRA program. That project was completed last summer at a cost of approximately $23,000 less than the full allocation. ARRA funds are very tightly controlled and must be used with strict guidelines placed on the purpose and calendar of its use. Rather than losing these funds, the City was able to do a fund exchange agreement with Josephine County to exchange Ashland's remaining ARRA funds for Josephine County's general funds.

The CDBG funds were turned back to the City's housing program. However, at the April 20th Council meeting, Councilor Chapman moved that these funds should remain in Public Works for development of an alternate ADA project or projects. (See attached Council minutes.) The motion passed with a 4 to 3 vote.

Councilor Chapman suggested the following two projects:

1. Audible traffic signals in the central business district. This project would retrofit the seven traffic signals in the central business district with audible signals that could be detected by the blind community.
2. Completion of landscaping at the Northlight Development (Lithia Way). This project would provide street trees, irrigation and tree grates along the Northlight frontage on Lithia Way.

Both of these projects could be developed with the available funds if they can fully meet the guidelines of the CDBG funds usage as outlined in the attached memo of May 12, 2010. Both of these projects will be submitted to the City Council for consideration.

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CITY OF
ASHLAND

Memo

DATE: 7/8/2010

TO: Transportation Commission

FROM: Planning Department-Housing Division

RE: CDBG Requirements for Public Facilities Improvements

Under the CDBG Program, grantees may use funds to undertake a variety of public facilities and public improvement projects. In general, public facilities and public improvements are interpreted to include all facilities and improvements that are publicly owned, or that are owned by a non-profit and open to the general public. (Code of Federal Regulations (CFR) Citations: 570.201(c), 570.207, 570.208.

Eligible Public Facilities Activities:

- The acquisition, construction, reconstruction, rehabilitation, or installation of public facilities and improvements owned by the grantee or a non-profit.

Eligible types of facilities and improvements include:

- Infrastructure improvements (construction or installation) including, but not limited to streets, curbs, and water and sewer lines;

- Neighborhood facilities including, but not limited to public schools; libraries, recreational facilities, parks, playgrounds; and facilities for persons with special needs such as facilities for the homeless or domestic violence shelters, nursing homes, or group homes for the disabled;

Eligible costs associated with eligible activities may include:

- Energy efficiency improvements;

- Handicapped accessibility improvements (including improvements to buildings used for general conduct of government)

Ineligible activities,

Department of Community Development
20 East Main St.
Ashland, Oregon 97520
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Tel: 541-488-5305
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TTY: 800-735-2900

- The maintenance and repair of public facilities and improvements is generally ineligible (e.g., filling potholes, repairing cracks in sidewalks, mowing grass at public recreational areas or replacing street light bulbs).

- Operating costs associated with public facilities or improvements are ineligible unless part of a CDBG-assisted public service activity or eligible as an interim assistance activity.

National Objective:

All CDBG funded activities must meet a national objective. Typically public facilities improvements will be categorized under the Low to Moderate-income (LMI) benefit national objective as an area wide benefit.

Under the area benefit criteria, the public facility/improvement must benefit all residents of an area where at least 51% of the residents are Low to Moderate-Income. The service area need not have coterminous boundaries with Census tract borders or other officially recognized boundaries, but must be primarily residential in nature.

The City of Ashland is an Upper quartile exception community meaning that census block groups that of 49% low to moderate income can qualify for CDBG assistance under a low to moderate income area benefit definition. The City of Ashland contains 17 census block groups, 8 of those block groups qualify under the LMI area benefit criteria, (see census block group map attached).

If qualifying an activity under the Area Benefit criteria the grantee must show:

- The boundaries of the service area;

- Documentation that the area is primarily residential (e.g., zoning map);

- Income characteristics of households in the services area (Census data).

Public facilities funded by CDBG may sometimes qualify under the Limited Clientele criteria of the LMI national objective. The regulation stipulates that the facility benefit a specific targeted group of persons, of which at least 51% must be Low to Moderate-Income. This can be achieved by meeting one of the following criteria:

- Serving a group primarily presumed to be LMI such as abused children, battered spouses, elderly persons, severely disabled adults, homeless persons, illiterate adults, persons living with AIDS, and migrant workers;

- Being of such a nature and location that it may be concluded that the activity's clientele are LMI.

Examples of past public facilities improvements funded by CDBG include; sidewalk improvements on 8th street, the installation of a wheel chair ramp on the Pioneer building, and a bus shelter on Siskiyou Blvd in front of an complex for peoples with disabilities.

Federal Labor Standards

Construction work that is financed in whole or in part with CDBG funds must adhere to certain Federal labor standards requirements. The labor laws that may apply to CDBG funded construction work include the Davis-Bacon Act and the Copeland Anti-Kickback act.

The Davis-Bacon Act is triggered when construction work over $2,000 is financed in whole or in part with CDBG funds. It requires that workers receive no less than the prevailing wages being paid for similar work in the same area. Davis-Bacon does not apply to the rehabilitation of residential structures containing less than eight units or force account labor (construction carried out by employees of the grantee).

The Copeland Anti-Kickback Act requires that workers be paid weekly, that deductions from workers' pay be permissible, ant that contractors maintain and submit weekly payrolls.

Environmental Review

All projects funded with CDBG funds are subject to Environmental Review prior to commitment of funds. The purpose of the environmental review process is to analyze the effect a proposed project will have on the people and the natural environment within a designated project area and the effect the material and social environment may have on a project. The provisions of the National Environmental Policy Act (NEPA), some Council on Environmental Quality (CEQ) regulations, and a myriad of other Federal and state laws and regulations also apply depending upon the type of project and level of review required.

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Memo

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TO: Transportation Commission

FROM: Planning Department-Housing Division

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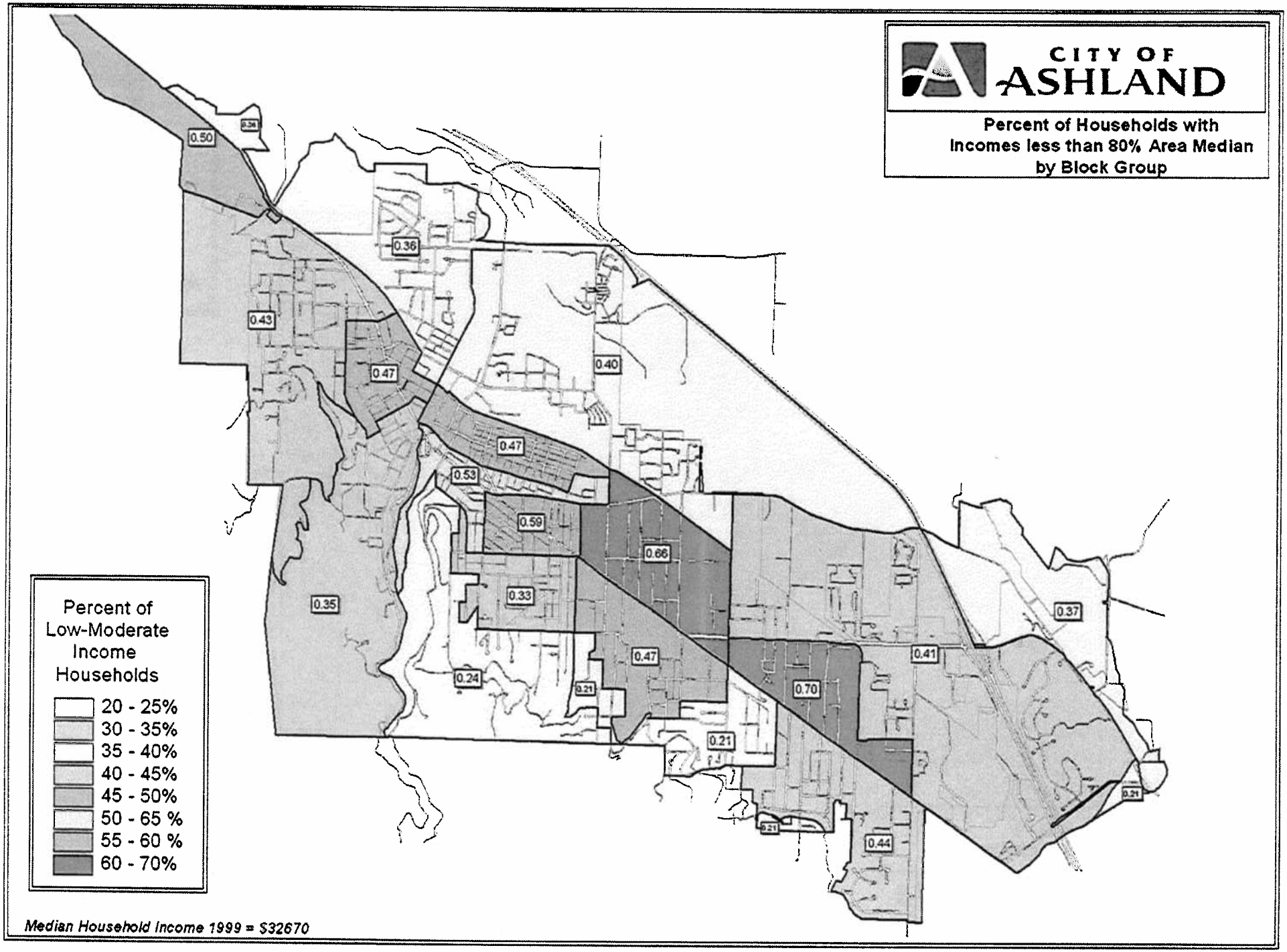
CITY OF ASHLAND
Percent of Households with Incomes less than 80% Area Median by Block Group
0.50
0.36
0.43
0.47
0.40
0.47
0.53
0.59
0.66
0.33
0.35
0.37
0.47
0.41
0.24
0.21
0.70
0.21
0.21
0.44
Percent of Low-Moderate Income Households
20 - 25%
30 - 35%
35 - 40%
40 - 45%
45 - 50%
50 - 65 %
55 - 60 %
60 - 70%
Median Household Income 1999 = $32670

Revised Memo

CITY OF ASHLAND

Date: June 17, 2010

From: James Olson

To: Transportation Commission

Re: PROPOSED POLICY FOR THE ESTABLISHMENT OF SHARED ROADWAY DESIGNATIONS

QUESTION
Will the Commission consider the adoption of a policy for the designation of shared roadways?

STAFF RECOMMENDATION
Staff recommends that the Commission adopt a policy to be used in defining and designating City streets as "shared roadways."

BACKGROUND
To date, the Commission had designated Oak Street and Grandview Drive as shared roadways. We have recently received a request that Helman Street also be designated as such. A suggestion was also made to mark 'A' Street in a similar fashion. As the shared roadway concept becomes more popular, we will likely see many more requests for the shared road designation. While the designation seems to be effective in alerting drivers to the presence of bikes and pedestrians, it can become a commonplace occurrence thereby lessening its impact and effectiveness.

Currently there is no established scientific or analytical process for determining which streets should be designated as shared roads and which streets may not benefit from that designation. The Commission may wish to adopt a set of parameters which can be applied equally to all applications. Staff suggests the Commission create an understandable, defensible and intuitive policy for the designation of shared roadways with the goal being to designate only those facilities where a true need can be identified.

I have added suggested parameters from Commissioners at last month's meeting as well as some others from staff. They include:

- Traffic Volume - Is the traffic volume high enough to present a danger to bicyclists and pedestrians?

- Bike & Pedestrian Volume - Does the street carry a significant amount of bike and pedestrian traffic?

- Street Attributes - Are there special conditions on the street which create hazards for bicyclists and pedestrians such as:
    - Narrow street width
    - Lack of sidewalks, shoulders or bike lanes

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  - Posted speed
  - Steep grades
  - Alignment issues
  - Vision problems

- Street Classifications - Should the designation of a shared roadway be limited to neighborhood or collector streets?

- Safe Routes to School (SRTS) Designation

- Liability Issues

- Narrow residential road speed limit reduced to 15 mph (HB 2297)

- Cost Savings?

Research has shown the most successful way to increase bicycling and walking is through a comprehensive approach that included the "5 E's" directly or indirectly. The Commission underscored the importance of the 5 E's in their goal setting activity. Aside from designating a street as a shared roadway, the Commission may want to define a shared roadway in regards to the five "Es" of transportation safety:

- Engineering
- Education
- Enforcement
- Encouragement
- Evaluation

Ultimately this is an issue that can be addressed within the TSP update. It is suggested that any policy and/or guidelines the commission might identify be passed on the Kittleson and Associate for implementation into that document.

Enrolled
House Bill 2297

Sponsored by Representative TOMEI (Presession filed.)

CHAPTER .....

AN ACT

Relating to speed in residence districts; creating new provisions; and amending ORS 811.105 and 811.111.

Be It Enacted by the People of the State of Oregon:

SECTION 1. Section 2 of this 2007 Act is added to and made a part of the Oregon Vehicle Code.

SECTION 2. "Narrow residential roadway" means a two-way roadway that is:

(1) Located in a residence district; and

(2) Not more than 18 feet wide at any point between two intersections or between an intersection and the end of the roadway.

SECTION 3. ORS 811.105 is amended to read:

811.105. (1) Any speed in excess of a designated speed posted by authority granted under ORS 810.180 is prima facie evidence of violation of the basic speed rule under ORS 811.100.

(2) If no designated speed is posted by authority granted under ORS 810.180, any speed in excess of one of the following speeds is prima facie evidence of violation of the basic speed rule:

(a) Fifteen miles per hour when driving on an alley **or a narrow residential roadway**.

(b) Twenty miles per hour in a business district.

(c) Twenty-five miles per hour in any public park.

(d) Twenty-five miles per hour on a highway in a residence district if:

(A) The residence district is not located within a city; and

(B) The highway is neither an arterial nor a collector highway.

(e) Fifty-five miles per hour in locations not otherwise described in this section.

SECTION 4. ORS 811.111 is amended to read:

811.111. (1) A person commits the offense of violating a speed limit if the person:

(a) Drives a vehicle on an interstate highway at a speed greater than 65 miles per hour or, if a different speed is posted under ORS 810.180 (3), at a speed greater than the posted speed.

(b) Notwithstanding paragraph (a) of this subsection, drives any of the following vehicles at a speed greater than 55 miles per hour on any highway or, if a different speed is posted under ORS 810.180 (3), at a speed greater than the posted speed:

(A) A motor truck with a gross vehicle weight rating of more than 10,000 pounds or a truck tractor with a gross vehicle weight rating of more than 8,000 pounds.

(B) A school bus.

(C) A school activity vehicle.

(D) A worker transport bus.

(E) A bus operated for transporting children to and from church or an activity or function authorized by a church.

(F) Any vehicle used in the transportation of persons for hire by a nonprofit entity as provided in ORS 825.017 (9).

(c) Drives a vehicle or conveyance on any part of the ocean shore in this state at a speed greater than any of the following:

(A) Any designated speed for ocean shores that is established and posted under ORS 810.180.

(B) If no designated speed is posted under ORS 810.180, 25 miles per hour.

(d) Drives a vehicle upon a highway in any city at a speed greater than a speed posted by authority granted under ORS 810.180 or, if no speed is posted, the following:

(A) Fifteen miles per hour when driving on an alley **or a narrow residential roadway**.

(B) Twenty miles per hour in a business district.

(C) Twenty-five miles per hour in a public park.

(D) Twenty-five miles per hour on a highway in a residence district if the highway is not an arterial highway.

(E) Sixty-five miles per hour on an interstate highway.

(F) Fifty-five miles per hour in locations not otherwise described in this paragraph.

(e) Drives a vehicle in a school zone at a speed greater than 20 miles per hour if the school zone is:

(A) A segment of highway described in ORS 801.462 (1)(a) and:

(i) The school zone has a flashing light used as a traffic control device and operated under ORS 811.106 and the flashing light indicates that children may be arriving at or leaving school; or

(ii) If the school zone does not have a flashing light used as a traffic control device, the person drives in the school zone between 7 a.m. and 5 p.m. on a day when school is in session.

(B) A crosswalk described in ORS 801.462 (1)(b) and:

(i) A flashing light used as a traffic control device and operated under ORS 811.106 indicates that children may be arriving at or leaving school; or

(ii) Children are present, as described in ORS 811.124.

(2) The offense described in this section, violating a speed limit, is punishable as provided in ORS 811.109.

Passed by House March 29, 2007

.....
Chief Clerk of House

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Speaker of House

Passed by Senate May 18, 2007

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President of Senate

Received by Governor:

.....M.,....., 2007

Approved:

.....M.,....., 2007

.....
Governor

Filed in Office of Secretary of State:

.....M.,....., 2007

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Secretary of State

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Shared-Use Streets – An Application of "Shared Space" to an American Small Town

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ABSTRACT

Langley, Washington, a semi-rural town of 1,050 people, is expected to grow by 40 to 100 percent over the next 20 years. One of the town's biggest assets is its pedestrian-friendly character, which is currently supported by low traffic volumes.

Anticipating this growth, the City is developing new street design standards to support all users and modes. One of the new street types is "shared-use," which mixes pedestrians, bicyclists, and drivers in a low-speed environment that emphasizes the community function of the street. Several streets already operate in this way; by codifying standards, the benefits can be preserved and distributed to more areas.

Precedent for shared-use streets comes from the European "shared space" movement, which differentiates between the traffic world (the highway) and the social world (streets within a town). Traffic-world features (traffic signals, lane markings, etc.) are removed within the town. Streets are instead designed as public spaces, providing strong contextual cues to drive slowly and carefully while implementing features that support safe and enjoyable use by walkers, bikers, and others. Shared space has a history of over 20 years, successfully demonstrating improvements in safety and livability.

Adapting shared space to a semi-rural American setting requires a combination of place-sensitive solutions. Emerging designs encourage slow speeds through the use of innovative, community-based traffic calming elements on designated shared-use roadways. This paper represents proposed shared-use street design standards, which will be further refined throughout the planning and implementation process.

INTRODUCTION

Langley, Washington is a small town on Whidbey Island, north of Seattle. It is already an unusually walkable town. This paper describes an initiative by Langley's city government to enhance that walkability and expand the "public space" character of its low traffic-volume streets.

The town is located about four miles from the nearest highway. The city limits encompass approximately 640 acres within a 4.0 mile by 2.5 mile area. The historic core is laid out in a grid pattern of approximately 300 to 600 foot (91 to 183 meter) blocks. Primarily residential development has been constructed along the roads radiating from the town center. An aerial view of Langley is provided in Figure 1.

FIGURE 1 Langley, Washington.

The total population of the town is about 1,050 people. Langley is one of the designated urban growth areas for Island County. The town is expected to attract anywhere from 400 to 1,000 new residents over the next 20 years.

With the concentrated grid pattern, and a central core of shops and services, Langley is the type of town where people walk to the post office and run into friends and neighbors along the way. Many people also walk for pleasure and exercise along the town's quiet country lanes. Currently, only a few streets in the town have sidewalks, or even asphalt walkways constructed as part of the roadway. Most streets are shared by pedestrians, bicyclists, and cars. Traffic volumes are sufficiently low that this arrangement has been successful. However, the anticipated growth in the town could jeopardize the current balance between modes. In anticipation of this issue, the town is in the process of developing a new set of street standards. These standards are being guided by Goal 2 and its Policy 1, which were added to the Transportation Element of Langley's Comprehensive Plan in 2006. "Goal 2: Design, regulate, and maintain Langley's roads

and streets in a way that balances the needs of all uses and users, recognizes the streets' role as public spaces, retains Langley's small-town character, and minimizes impervious surfaces. Policy 1: The city should develop and implement a set of street types (designs and associated regulations) to achieve this goal that can be used in different parts of the city depending on traffic volumes, anticipated future use characteristics, and existing or planned surrounding land uses" *(1)*.

The intention of the new street standards is to meet the circulation needs of the community while also furthering social and environmental objectives by sensitively applying tailored solutions that meet the needs of a particular situation, rather than a one-size-fits-all approach. Some streets will warrant separate facilities for pedestrians, bicycles, and motorized vehicles, while on other streets it will be possible for all modes to continue to share the same roadway.

The concept of complete streets, with separate facilities for different modes, has been well developed (even if there is a strong ongoing need for application of the concept to many existing streets). See for example, the Institute of Transportation Engineers' *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*. The merits of, and strategies for, developing complete streets will not be repeated here. This paper will focus on the concept and design of shared-use streets.

Examples of Existing De Facto Shared-Use Streets in Langley

While many of the residential streets in Langley are currently, in practice, already shared use, there are two streets that serve as inspiration for the effort to formalize shared-use streets. These two well-loved walking streets are Edgecliff Drive (about 1.5 miles/2.4 kilometers long and mostly 18 feet/5.5 meters wide) and Al Anderson Avenue (about 1.25 miles/2.0 kilometers long and between 18 and 22 feet/5.5 and 6.7 meters wide). The width of the street allows strolling pedestrians to group and regroup according to the flow of conversation, while also permitting them to easily get out of the way if vehicles need to pass. Both have 25 mile per hour (mph) speed limits (40 kilometers per hour (km/h)). Measured peak traffic volume is 52 vehicles per hour on Al Anderson. While data is not available for Edgecliff, it is likely similar. Both have 1- to 2- foot-wide (0.3 to 0.6 meter) gravel and grass shoulders. Edgecliff has homes with driveways all along its length. Al Anderson has long stretches without driveways and serves as a collector for other local access roads. Figure 2 shows a view of Al Anderson Avenue.

FIGURE 2 Al Anderson Avenue.

Generalizing from the current characteristics of Edgecliff and Al Anderson, the starting point for the characteristics of shared-use streets is that they are relatively narrow, low traffic-volume, low speed streets that serve a variety of uses and users.

BENEFITS AND CHALLENGES – AN OVERVIEW

The initial motivation for shared-use streets comes from the social benefits of using streets as multipurpose public spaces, not just corridors for motor vehicles. The innovative Dutch traffic engineer Hans Monderman makes a distinction between the world of the highway (the traffic world) and the world of the settlement (the social world). In this European view, the traffic world is appropriately oriented to vehicles, speed, predictability, and uniformity. Correspondingly, the social world of public spaces in towns and cities is appropriately oriented to people, the variable pace of pedestrians, diversity, spontaneity, and the unpredictability that comes with these. In Monderman's view, vehicles find their place in the social world by accommodating to the social life of the street – the social life of the street should not be modified to accommodate vehicles. In these terms, shared-use streets are definitely part of the social world. As such, they are public spaces that connect the buildings on either side of the street, rather than dividing them. They are places for the kind of spontaneous interactions among neighbors that are vital to building the fabric of community.

There are also other significant benefits that come primarily from the narrowness of the area devoted to circulation:

- Reduced impervious surface serves the environmental goals of Low Impact Development by generating less stormwater runoff *(2)*.

- Less pavement width allows more efficient use of land, thus reducing housing costs.
- Less cost for road construction (and eventual maintenance) also reduces housing costs and saves taxpayer funds.

While so far there have been no significant accidents on Langley's de facto shared-use streets, the primary concern raised about shared-use streets has been about the safety of mixing multiple uses and users in the same space. The central design challenge in formalizing shared-use streets is to optimize the social, environmental, and economic benefits while minimizing the safety risks.

PRECEDENT FOR SHARED-USE STREETS

Beyond the informal sharing of streets between different modes in settings such as those described in Langley, there are examples of streets created with the explicit intention to mix pedestrians, bicyclists, and drivers in a way that puts all modes on a more even footing.

The concept of "shared space" has been gaining momentum in Europe, taking inspiration from pioneers such as Hans Monderman and Ben Hamilton-Baillie, a British urban planner and transport specialist who has been promoting shared space in the UK. Shared space recognizes that streets are the most accessible, pervasive, and numerous public spaces in communities and "strives towards a design and layout of public spaces where traffic, human exchange and other spatial functions are in balance" *(3)*. Instead of being a monoculture of traffic, streets are reclaimed as a fully functioning ecosystem of human interaction, commerce, play, natural processes, and all modes of transportation. Vehicles are not banished, but the streets are designed foremost as public spaces, which cues drivers to act as civil, social beings rather than focused, speeding human-machine hybrids. Often the most striking feature of shared space streets is the lack of conventional signage and traffic control devices. This is coupled with an overall design treatment that creates streets and intersections that look more like plazas and pedestrian routes than roads. One of the main premises of shared space is that the instruments of traditional traffic engineering create a barrier that inhibits drivers' abilities to read contextual clues. Remove the devices that tell drivers they are in a predictable environment where everything will happen according to the signs, and drivers slow down and pay attention to what is happening around them. In this environment, the question of who has the right of way is negotiated through eye contact and social interaction between all road users.

The first project using this approach to street design was constructed in Oudehaske, Netherlands in 1985. By creating a square-like quality through replacing the asphalt roadway with clinker bricks and emphasizing the village church and village pub through urban design, speed reductions of 50% were achieved for a roadway with an average daily traffic (ADT) count of 8,000 vehicles *(4)*.

Since then, a growing number of projects have been completed in the Netherlands and several other European countries. One of the best-known projects is the Laweiplein intersection in Drachten, Netherlands. This intersection handles approximately 22,000 vehicles per day *(5)*. Traffic signals were removed and the intersection redesigned to more closely resemble a public plaza, featuring large fountains integrated into the corners of the intersection. The Noordelijke Hogeschool Leeuwarden (NHL) University of Applied Sciences conducted a comprehensive before and after evaluation of the

intersection. They found significant safety improvements. In the nine years preceding the reconfiguration of the intersection in 2003, there were between four and 13 accidents per year, with a mean of 8.3 accidents. Four of those were serious accidents. In the two years following the redesign for which complete data is available (2004 and 2005), there was one accident per year – one damage only accident in 2004 and one non-serious injury accident in 2005 *(6)*.

Shared space has been tried and proven to provide both social and safety benefits in a variety of successful applications. Shared space has been applied to streets with ADT volumes of 3,000 to over 20,000 vehicles. It has been applied specifically at intersections and along whole corridors. At intersections, all modes mix freely. On some streets, all modes mix freely along the whole length of the street as well, while on others, distinct sidewalks are provided but the expectation is maintained that pedestrians could be in the roadway in any place at any time. However, these examples of shared space streets from Europe differ from the streets in Langley in several key ways. Most significantly they are streets in comparatively urban environments, with significant use by pedestrians and bicyclists. The streets in Langley are much more rural in character with low demand from all modes. One of the challenges of implementing shared-use streets in Langley will be maintaining the expectation that they are a "people place" when people are not always around.

STRATEGIES FOR ENHANCING SAFETY

Langley's de-facto shared-use streets have so far been accident free and well loved, which shows that pedestrians, bicyclists, and vehicles can successfully mix in a low traffic volume, low speed environment. However, in formalizing the concept of shared-use streets it is necessary to look more closely at what makes them work and how they could be designed to work even better. Much of the guidance for the good design of shared-use streets can be gained by looking at what makes the current streets safe and how safety could be further enhanced. There are four primary safety factors: speed, visibility, attentiveness, and pedestrian escape.

Speed

Probably the most important factor in successfully mixing multiple uses and users is to keep everyone's speed relatively low. The critical question is: how low does it need to be?

Research by Great Britain's Department of Transportation, and used in the United States by the Federal Highway Administration and others, shows that the probability of death in a pedestrian-car collision goes from 5% at 20 mph (32 km/h) to 45% at 30 mph (48 km/h), 85% at 40 mph (64 km/h), and 96% at 50 mph (80 km/h) *(7)*. Figure 3 illustrates this relationship.

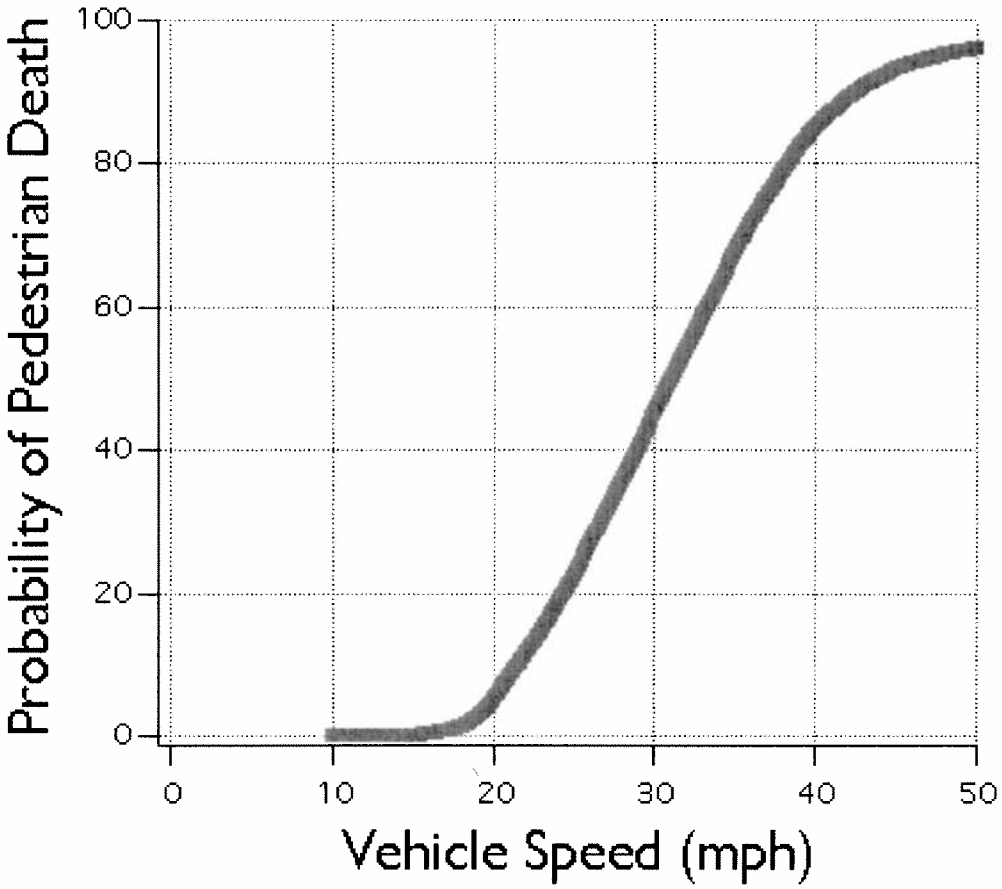

FIGURE 3 Probability of Pedestrian Death Relative to Vehicle Speed.

Obviously, the slower the speed, the safer the street. However, setting the speed limit too low runs the risk of frustrating and alienating drivers, especially during those times when there are no other users on the street. Nevertheless, the difference between 20 mph and 25 mph (32 to 40 km/h) is significant. Twenty miles per hour seems to be a "sweet spot" for the maximum speed on shared-use streets. This correlates well with 20 mph School Zones. It is also the lowest allowable speed limit under the Revised Code of Washington *(8)*. It is important that cyclists stay below this speed as well.

For successful implementation, it is important that this speed limit be designed into the roadway and not just regulated through signage. An objective of the street design is to not only ensure drivers stay within the speed limit, but to create an environment that makes it feel natural to even drive below the speed limit. The street should be designed to actually feel unsafe at speeds approaching and above 20 mph (32 km/h). Shared space recognizes the reality of risk compensation and capitalizes on it by creating places that are made safer by feeling less safe. "When a situation feels unsafe, people are more alert and there are fewer accidents" *(3)*. Drivers slow down and all road users keep sharply aware of what is happening around them. A successful design will encourage drivers and

bicyclists to go slowly while creating an environment that is comfortable for pedestrians. A balance must be struck between encouraging walking through prioritizing the social life of the street, without giving pedestrians a false sense of security.

Design Strategies

Design strategies for encouraging slow speeds consist of physical constraints and psychological cues. Key physical constraints include roadway width and curves. The faster a car is traveling, the greater the lane width required for comfortable and safe travel. Correspondingly, the narrower the lane, the greater the pressure on the driver to drive slowly. Shared-use streets should have a paved width that corresponds to the minimum width that still allows two cars to pass safely at slow speeds. A width of 18 feet (5.5 meters) seems to strike a good balance. This allows 9 feet (2.7 meters) per car when two vehicles pass, which is wider than the typical parking lane width (7 feet/2.1 meters) but narrower than typical travel lanes (11 feet/ 3.4 meters) *(9)*. Curves do affect driving speed, but are more difficult to add to an existing road. Curves should be considered a positive feature and curvature can be accentuated to reduce the "runway" effect of long, straight stretches of road. Psychological cues will be dealt with later in the section on attentiveness.

Visibility

Along with ensuring slow speeds, maintaining good visibility is critical to achieving a safe facility. Sight distances should allow drivers ample time to react even if they are exceeding the speed limit. However, care should be taken when designing for ample sight distance to not send a cue to drivers that it is acceptable and safe to drive above the speed limit.

Design Strategies

Minimum sight distances on shared-use streets should be approximately 125 feet (38 meters). This distance is based on a driver perception time of 2 seconds and a coefficient of friction of 0.4 for a vehicle traveling at 25 mph (40 km/h). While it is impractical to set a maximum sight distance, longer is not necessarily better. Shorter sight distances reinforce the message that the street is an unpredictable environment and one should drive slowly and with care.

The greatest challenge regarding visibility is visibility at night. Many of the candidate shared-use streets in Langley do not currently have streetlights. Consideration should be given to providing some level of lighting. This could potentially be provided by pedestrian-scaled solar-powered lights. Another potential tool for increasing visibility is to provide flashing red or yellow lights to area residents that can be clipped to clothing and worn while walking. In Sweden, where it can be dark for around 20 hours per day in the winter, people typically wear plastic reflectors, routinely carrying them in their pockets and then taking them out when they go walking.

Attentiveness

Speed and visibility deal more with the external conditions, while attentiveness addresses a driver's internal ability to notice and avoid a potential conflict with other road users. The role of inattentiveness in collisions is hard to quantify accurately, since it is an

internal state and most drivers involved in a collision do not want to admit to being inattentive. However, research by the National Highway Traffic Safety Administration and Virginia Tech Transportation Institute published in 2006 found that 65 percent of near crashes and almost 80 percent of crashes involve driver inattention *(10)*. While attentiveness is an internal state, the environment can encourage attentiveness or subtly suggest that it is unnecessary. This concept is central to shared space and the idea of "mental speed bumps" put forth by David Engwicht. A social inventor and street philosopher from Australia, David Engwicht has identified three mental speed bumps: intrigue, uncertainty, and humor *(11)*. These "speed bumps" engage drivers with the environment around them, causing them to drive more slowly, attentively, and courteously.

Design Strategies

Encouraging attentiveness involves both negative and positive strategies. The first strategy is to avoid sending signals that attentiveness is not required. The second strategy is to engage drivers with the environment around them.

As the experience of shared space shows, signs and standard traffic engineering devices can act as a barrier between drivers and their environment. These devices should be minimized. There should be no lane markings. Lane markings imply a regulated roadway to drivers. They are a cue that it is safe to go faster and that there will be minimal unexpected occurrences (such as pedestrians on the roadway). This is the opposite of the message that the design of shared-use streets should convey. The shared space approach is to have no regulatory signs whatsoever. It may be appropriate to have one 20 mph speed limit sign at the entrance to each shared-use street to provide people with a clear understanding of speed expectations. The speed limit could be painted on the roadway rather than posted on a standard speed limit sign. Graz, Austria has a citywide 30 km/h (18.6 mph) speed limit on all streets except a few major streets (where the speed limit is 50 km/h(31 mph)) *(12)*. They paint the speed limit in large letters on the street at the entrance to each 30 km/h zone.

Engaging drivers with the environment around them can be done through using "mental speed bumps" and by creating an environment that is human scale and speaks to the social use of the space.

The first opportunity to implement these objectives is to provide a distinctive gateway at the entrances to shared-use streets. Ideally, this should be a creative element developed with the local neighbors actively participating in the design and implementation. A creative, grassroots approach can help develop a sense of neighborhood identity and pride. The roadway can be painted at the entrance to the shared-use streets zone by the neighbors, similar to an intersection repair, as pioneered by the City Repair Project in Portland, Oregon *(13)*. A gateway arch or banners could also be built as a neighborhood project. Engaging the creativity of the neighbors helps generate commitment to shared-use streets among residents, and the physical results are likely to be more intriguing and humorous than a more formal effort would produce. The community activity is a way of claiming the street as community space, and it leaves a lasting reminder to visitors and residents that they are guests in that community space when they are using the street.

Intersections along the shared-use street are another opportunity for creative and engaging treatments. The crossroads of two streets is a natural miniature square or plaza. Where two shared-use streets intersect, this function can be fully supported. Neighbor initiated amenities can be provided at the corners of an intersection, such as benches, tea stations, chalk board drawing stations, and community bookshelves *(13)*. A mural can be painted on the intersection to claim it as a "place" and not just a space to pass through. Intersections are demanding of road users, requiring navigation of a safe route through multiple potentially conflicting movements of other users. Enhancing the intersection with art and amenities reinforces the message to expect the unexpected and travel slowly and with caution.

Where a shared-use street intersects a complete street, the other street typology proposed for Langley, the gateway treatments discussed previously provide a clear delineation of the two zones. One aspect that needs to be treated with additional care is the transition for pedestrians. Pedestrians will go from being able to occupy a significant portion of the width of the roadway to being channeled onto sidewalks along the edge of the roadway. The sidewalks need to ramp down to the shared-use street, providing accessibility for pedestrians in wheelchairs and providing a smooth transition. This ramping needs to be done in such a way as to not increase the perceived turning radius of the corner. Materials with different colors and textures, as well as paint, can be used to differentiate the ramped sidewalk from the road surface.

One of the challenges of the de facto shared-use streets examples in Langley provided earlier is the fact that they are both relatively long, straight streets. To minimize the effect of "being on the open road," where it is easy to look far into the distance and pick up speed while driving, a finer-grain definition should be brought to the street, creating the impression of a series of rooms rather than a long corridor. Street trees can be planted along the side of the shared-use streets, with a different species every few hundred feet. The trees will literally give the sense of a room, providing walls and ceiling to the street, while the varying species will give distinction to different sections of the street. Trees also help keep speeds low by increasing the "visual friction" of the street.

The final recommendation for increasing attentiveness is to encourage property owners to use the edge of their property (and/or the adjacent right-of-way that is set aside for potential future expansion but is not currently used as part of the street) for interesting installations, such as gardens, art, lemonade stands, or benches. This may seem counterintuitive – encouraging driver attentiveness by giving drivers, and others, interesting features to look at – but intriguing drivers, signaling to them that they should expect the unexpected, and introducing humor encourages more attention to the environment and slower speeds. Interesting installations along the street edge enhance the pedestrian environment and remind drivers that they are guests in a community space.

Pedestrian Escape

With low traffic volumes, slow speeds, adequate visibility, and an environment that encourages driver attentiveness, pedestrians and cars should be able to comfortably share the same roadway most of the time. However, there may be times when two cars are passing, a driver does not seem to be sufficiently attentive, or an approaching car is moving uncomfortably fast, that a pedestrian may feel more comfortable temporarily stepping off of the roadway. The focus on speed, visibility, and attentiveness is about

managing driver behavior to minimize the risk to other road users. Providing an easy route of escape for pedestrians gives them a fallback that is in their own control if the other measures to assure safety do not seem adequate in a particular situation.

Design Strategies

Beyond the road surface there should be a strip of unpaved shoulder that provides a refuge area for pedestrians who want to step off the road surface when cars pass. This shoulder could be low grass or other material. Two of the challenges for this portion of the street will be to ensure that this area does not increase the perceived width of the road and to ensure that neither drivers nor pedestrians view this as a segregated facility that pedestrians should use instead of the roadway.

Parallel parking is a valuable tool for traffic calming and buffering pedestrians from the roadway when separate pedestrian facilities are provided. However, on the shared-use streets discussed here, on-street parking would present an obstruction and a hazard. Having cars parked along the side of the road would block the path of pedestrians to the shoulder in the situation when passing vehicles made it feel uncomfortable to be on the roadway.

In the highly unlikely situation of a vehicle leaving the roadway and endangering a pedestrian, the street trees proposed earlier may provide a level of physical barrier between the vehicle and pedestrian.

SHARED-USE STREET DESIGN SUMMARY

Recognizing that shared-use streets are an appropriate solution for a particular situation, and that changing situations may call for different solutions, adequate city right-of-way should be secured and maintained to allow for future street expansion. A right-of-way of approximately 56 feet (17 meters) should comfortably accommodate future potential demand for sidewalks, planting strip/natural stormwater infrastructure, parking, and vehicle travel lanes *(9)*.

Within that right-of-way, the following elements are proposed for shared-use streets:

- Narrow paved roadway (18 feet/5.5 meters wide)
- Level grass shoulders available for pedestrians to step off the road temporarily (5 feet/1.5 meters wide on each side)
- Creative gateway treatment
- Creative intersection treatments
- Street trees of varying species
- Pedestrian scale street lights
- Minimum sight distances of 125 feet (38 meters)
- No on-street parking
- Signage limited to one 20 mph sign (free-standing or painted on the roadway) at the shared-use street entrance

Natural stormwater management can also be a part of the initial shared-use street design. With an 18-foot roadway and approximately 5 feet of shoulder on each side, there would be approximately 28 feet (8.5 meters) of right-of-way not dedicated to transportation functions within the 56-foot (17 meter) right-of-way. Part of this width could be used for natural stormwater management. Depending on the character of the

surrounding soils, this area could provide the functions of detention, retention, infiltration, bio-filtration, and/or interception.

IMPLEMENTATION

In many ways, what makes a street a shared-use street has more to do with the way people use it than what it looks like. Therefore, the social aspects of implementation are particularly critical. The City may initiate designation of a street as a shared-use street, but the residents along that street should be involved in the process. At a minimum, an informational pamphlet should be sent to each household and a public meeting held. Better yet, it could be a requirement for implementation that 50% of the households sign a petition in favor of the new designation. The better people understand the concept, and the more they are invested in supporting it, the more successful shared-use streets will be. There are also opportunities for local residents to be involved in the design and physical implementation of the shared-use street, such as gateway treatments, interesting amenities along the street, and creating and maintaining landscaped natural stormwater treatment facilities.

Implementation of the physical improvements need not happen all at once. The new speed limit can be implemented first, following public education and approval of the shared-use street designation. Artistic gateways and intersection painting can occur as there is community interest and commitment to design and implement the projects. Modification to existing roadways, such as reducing street width and installing level grass shoulders, can be implemented as funding becomes available and if concerns have been raised over the existing conditions.

One aspect of implementation is the phased implementation of the full shared-use street design recommendations, but the ongoing evolution of the street should also be considered. It is anticipated that shared-use streets are most suitable at very low traffic volumes. For non-motorized road users to have a relaxed experience, there should be extended stretches when no vehicles pass. Translating this qualitative criterion into a quantitative threshold, vehicles should pass no more frequently than an average of one vehicle every 30 seconds. In other words, peak traffic volumes should be no more than 120 vehicles per hour. A recent traffic count on Al Anderson Avenue found traffic volumes of 52 vehicles per hour between 4PM and 6PM. This traffic volume threshold may be adjusted upwards if it is found that pedestrians continue to feel comfortable sharing the roadway even with higher traffic volumes following the shared-use street improvements. Traffic volumes on most streets in Langley that would be suitable shared-use streets are largely a function of the catchment area of households that use that street to travel to other destinations and the trip making patterns of those households (including mode split). It is not a given that increasing the number of households must increase vehicle traffic by a set and steady rate. If transportation demand management is paired with increases in density, more growth can occur before the threshold for effective functioning of shared-use streets is exceeded.

As the city grows, some streets that functioned as shared-use streets may eventually warrant separate facilities for pedestrians. The experience from Europe shows that streets can be claimed foremost as social spaces with much higher traffic volumes than those in Langley. However, over a certain threshold, which is a combination of traffic volume and speed (as well as relative pedestrian volumes), it is safer and more

comfortable for pedestrians to have sidewalks. In this scenario, sidewalks are provided as a courtesy, but the expectation remains that pedestrians are free to enter the roadway at any point, not just at intersections.

The City of Langley may consider requiring a development fee that goes into a fund for future sidewalks and other multimodal facilities. The City can also encourage minimal car use through a variety of means to support the continued successful sharing of the street by multiple modes.

A continual evolutionary process is anticipated, from the current de facto shared-use streets, through implementation of recommended measures to maintain and enhance the shared-use function of those streets as the city grows, and potentially to street designs that more closely mirror the European shared space streets. By establishing the intention to enhance the community, ecological, and economic functions of Langley's streets as the city grows, and bringing resources to bear to implement that intention, it is hoped that the changes brought by development can be harnessed to increase quality of life rather than erode it.

CONCLUSION

Langley is pursuing the development of shared-use streets based on the belief that they hold the promise for improved community, environmental, and economic performance compared to conventional street-use approaches. The development and implementation of shared-use streets is still in the early stages. Having streets that are shared by pedestrians, bicycles, and vehicles is not a new concept. However, prioritizing non-motorized modes and the community function of the street is not yet established practice. Part of the implementation of shared-use streets should be an ongoing process of assessment and refinement. Questions such as the following should be asked on a periodic basis. Are the streets more or less safe? Are more or fewer people walking? What are the community reactions? As Langley implements shared-use streets it is hoped that the success of shared space projects in Europe can be replicated in this American setting and that lessons from Langley can serve as a model for other American communities.

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From: Colin Swales <colinswales@gmail.com>
To: Mike Faught <faughtm@ashland.or.us>
CC: Nancy Slocum <Nancy@ashland.or.us>, Jim Olson <olsonj@ashland.or.us>, Da...
Date: 6/17/2010 10:13 AM
Subject: Shared Space & liability

Mike,
(cc Nancy, Jim, David)

I said at the last TC meeting that I would get some information concerning the issue of liability and Shared Space and Streets - TC's agenda item: *"Policy for Establishing Shared Roadways"*.

Apologies for being a bit late with this information, perhaps you could print it out for the Commissioners.

I called *Robert Gilman*, the Mayor Pro-Tem of Langley, WA and author of *Shared-Use Streets – An Application of "Shared Space" to an American Small Town* that was included in our earlier packet. He said they are still working on a major overhaul of their Land Use code, but pointed me to several resources that he had found useful in preparing his paper.

1. Local Government Commission - http://lgc.org/ e.g. Center For Livable Communities

2. Municipal Research and Services Center of Washington. http://www.mrsc.org/

3. Dan Burden's Walkable Communities Inc. http://www.walkable.org/

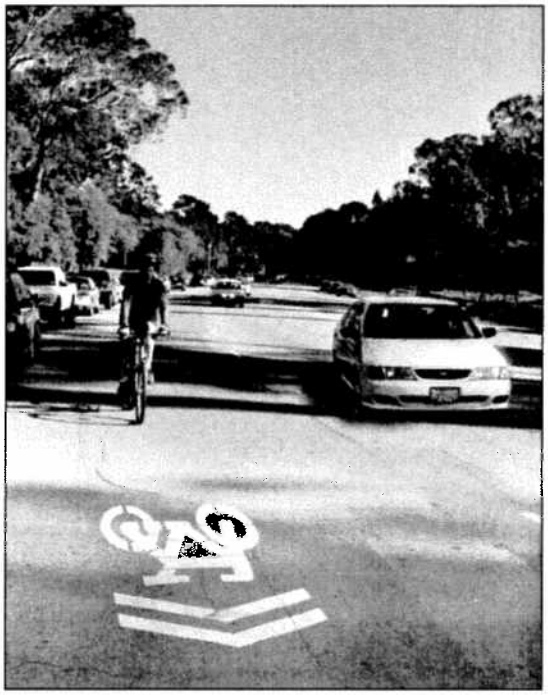
I know from my own prior research that the defining UK case law that deals with the public liability issue is *Gorringe v Calderdale*, decided by the House of Lords [UK's "Supreme Court" - see http://www.publications.parliament.uk/pa/ld200304/ldjudgmt/jd040401/gorr-1.htm]

*"..the Council did not owe Mrs Gorringe a duty of care to place a marking on the road or to erect a sign, warning motorists to slow down on approaching the crest of road where the accident happened.."

But is is difficult to know if any of this very interesting law opinion would be in any way applicable to the overly-litigious U.S.

Colin
*

San Francisco's Shared Lane Pavement Markings: Improving Bicycle Safety



FINAL REPORT
Febuary 2004

Prepared for:

San Francisco Department of
Parking & Traffic

Prepared by:

Alta Planning + Design

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Special thanks to James MacKay, Denver Bicycle Planner, for introducing and championing the shared lane marking concept.

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Project Need

Traffic curb lanes on signed/shared Class III bikeways (a.k.a. "signed shared roadways" in other states) are often too narrow to be safely shared side-by-side by cyclists and passing motorists. On these routes, cyclists wishing to stay out of the way of drivers often ride too close to parked cars and risk being struck by a suddenly opened car door (being "doored"). To avoid this, experienced cyclists ride further to the left and position themselves closer to the center of narrow lanes. This is permitted by the California Vehicle Code (C.V.C. 21202), but it often irritates motorists who are not aware that this is permitted. To address this and other problems, the San Francisco Bicycle Plan recommends that Class III bike routes be delineated with on-road markings. However, no approved standard pavement marking exists for this purpose. As a result, the following problems have arisen, particularly on higher traffic volume roadways:

- High incidence of "dooring",
- Wrong-way riding,
- Sidewalk riding, and
- Motorist squeezing cyclists against the curb or parked cars, or exhibiting other aggressive behaviors.

Paris, France

Many cities have experimented with a "shared lane marking" as a potential solution. The marking does not connote a separated bicycle lane, but instead directs the bicyclist to travel outside the car door zone and encourage safe co-existence. Such cities include Denver (CO), Gainesville (FL), Cambridge (MA), Portland (OR), Oakland (CA), Paris (France), Brisbane (Australia), Zurich (Switzerland), and others (see Appendix A for details of these and other efforts.) The only city to study the effectiveness of such markings is Gainesville (FL), which found that the markings caused cyclists to shift their positions by a few inches, a positive result.

Denver, Colorado

The City and County of San Francisco has in particular experienced a high frequency of complaints and problems due to increasing volumes of bicyclists on streets with high traffic volumes and heavily-used on-street parking. In 1998, San Francisco began experimenting with a green[1] pavement marking, referred to as "bike-inside-house," similar to that of Denver (CO), on various streets. While cyclist feedback was generally positive, there was concern about the marking's low visibility. As other jurisdictions began using varying marking designs, questions also arose about the need for a standard application of spacing, size, and location, as well as whether the marking was effective, safe, and beneficial.

Portland, Oregon

Thus, the San Francisco Department of Parking and Traffic (SF DPT) undertook this study to determine the effectiveness of shared lane pavement markings in encouraging safe bicyclist and motorist coexistence. The process ideally will lead the California Traffic Control Device Committee (CTCDC) to formally approve and effective shared lane marking for use throughout the state.

[1] San Francisco used green as its marking color because it was not in use as a standard color for traffic control devices.

Goals

The purpose of this study is to determine the effectiveness of shared-lane markings in achieving three distinct goals.

Goal 1: Improve the position of both motorists and bicyclists on roadways without bicycle lanes

Measure of Effectiveness:

- Distance of bicyclist from adjacent parked cars.
- Distance of motorist when passing a bicyclist.

Note: All study streets have on-street parking; however, if there is no parked car at the study site the measurement shall be to the curb face.

Goal 2: Reduce aggressive motorist behavior

Measure of Effectiveness:

- Observable hostile behaviors such as honking, gestures or other behaviors when passing or waiting to pass a bicyclist.

Goal 3: Encourage correct bicyclist riding behavior

Measure of Effectiveness:

- Number of bicyclists riding on the sidewalk.
- Number of bicyclists riding wrong-way on the street.

Additional Objectives

Shared-lane markings may also have the following effects:

- Inform motorists to expect bicyclists on the roadway.
- Inform motorists that bicyclists may indeed legally ride further to the left in the travel lane, even if that means blocking the lane at times.
- Inform bicyclists how to position themselves in the lane with respect to the curb or parked cars to avoid hazards.
- Increase the number of cyclists as people may feel more comfortable riding on streets with markings.

Arrow Designs

Human Factors Survey: Findings

The marking design in other cities is quite varied, as seen in Appendix A. Recognizing that an infinite number of possible design variations exist (size, color, shape, etc.), SF DPT undertook a human factors survey of the three most commonly used marking designs in the U.S.. The study compared driver and bicyclist comprehension of three alternative designs for the shared-use marking. Staff presented 120 bicycling commuters and 120 motorist commuters with one of three photographs (Figure 1) showing a typical urban street with a different kind of shared lane marking. They then asked a series of open-ended questions to determine:

- what they felt they should do in that scenario if they were bicycling/driving,
- why they would react that way, and
- what they thought the pavement marking in particular meant they should to do.

Key results included:

- All three markings encourage motorists to be more aware of bicycles.
- The bike-and-separate-arrow marking was frequently conveyed the incorrect message to 'bike straight only at the intersection ahead.'
- The bike-and-chevron marking was more likely to elicit the response to slow down than the bike-in-house symbol.
- Significantly more respondents thought the bike-and-chevron marking indicated a shared use lane than the bike-and-separate-arrow marking.
- About half of the surveyed bicyclists thought they should stay in the right lane and follow the arrow.

Bike-and-chevron marking *Bike-and-separate-arrow marking* *Bike-in-house marking*

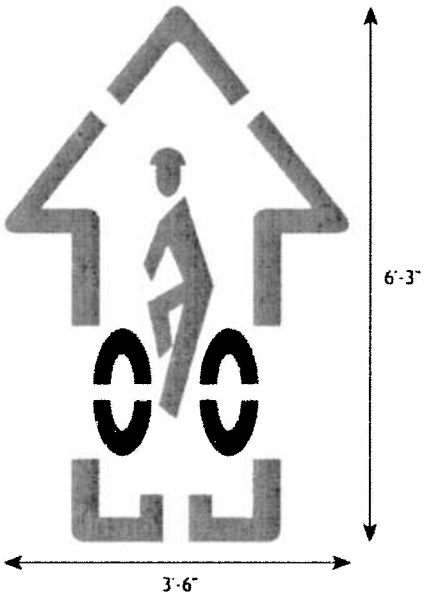
Figure 1. Survey Exhibits: Photographic Renderings

Selected Designs

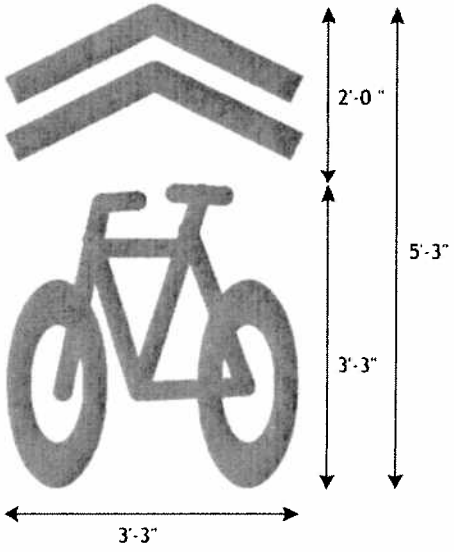
As a result of this research, as well as review from a Technical Advisory Committee, SF DPT chose to study the two designs shown in Figure 2.

The **modified bike-in-house** is 42 inches (3'-6") wide at the arrow points, 28 inches (2'-4") wide at the bottom channel, and 75 inches (6'-3") long. The rider is 28 inches wide at the wheels and 48 inches tall. Compared to the original bike-in-house used on various streets, the bicyclist is twice as large, the overall marking is 3 inches longer, and the overall width remains the same. In addition, a bike wheel channel was created at the bottom to encourage cyclists to ride on the arrow.

The **bike-and-chevron** marking is used in Paris and Chicago. Technical advisory committee members also strongly recommended studying the bike-and-chevron marking.



Modified "bike-in-house" marking



Bike-and-chevron marking

Figure 2. Selected Designs for the Study

Before-and-After Videotape Analysis

The primary approach used to evaluate cyclist and driver behavior was a before/after videotape study. In addition, the consultant team and the San Francisco Bicycle Coalition (SFBC) administered surveys to cyclists and drivers to gauge their perceptions about the effectiveness of the markings. This document presents the findings of both the video study and surveys.

The consultant team collected more than 140 hours of video, primarily during the weekday commute, at six locations (see photos starting on page 7):

- Polk Street
- 17th Street
- 2nd Street
- Market Street (weekday/midday location)
- JFK Drive (weekend/weekday location)
- Stanyan Street (weekend location)

The locations are heavily-used bicycle routes for both utilitarian and recreational cyclists. The streets have on-street parking with relatively narrow (≤22 feet) outside shared lanes (including parking) and no bicycle lanes. They have varied traffic volumes and roadway width characteristics (see Table 1). The markings were placed so that the centerline is 11 feet from the curb, or about 4 feet from parked cars (see Figure 3).

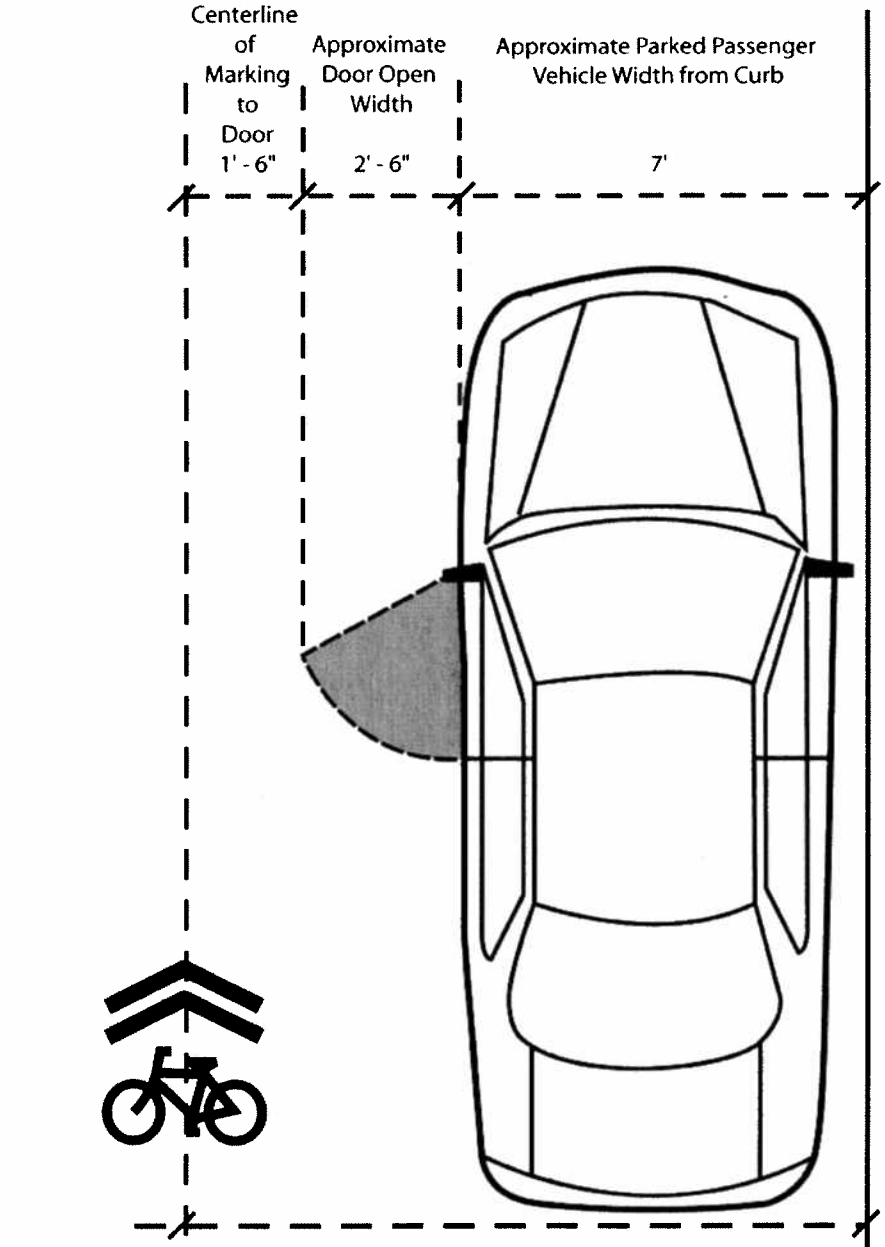
Table 1. Characteristics of Marking Locations

Street	Location	# of Lanes	Curb Lane Width (includes parking)	ADT[1] (Volume)
Polk Street	between Washington and Sacramento	two-lane road	22'	high ADT/lane
17th Street	between S. Van Ness and Dolores[2]	two-lane road	22'	moderate ADT/lane
Second Street	between Mission and Howard	four-lane road	17'	moderate ADT/lane
Market Street	between Van Ness and Octavia[2]	four-lane road	18'-19'	high ADT/lane
JFK Drive	between 8th and 10th Ave.	four-lane road	17'-19"	moderate ADT/lane
Stanyan Street	between Haight and Frederick	four-lane road	16'10"	moderate ADT/lane

1 Heavy ADT is defined as more than 4000 vehicles per day per lane of traffic. Moderate ADT is defined as between 2000 and 4000 vehicles per day per lane of traffic.

2 17th Street (between Dolores and Valencia) and Market Street (between Octavia and Gough) were marked by DPT with green pavement arrows prior to the Before/After Study. These green test arrows were removed years prior to the initiation of the "Before" video documentation.

Note: Other streets–Fell St., 8th Ave., Transverse St., Page St. –were considered but not selected for analysis as the budget allowed for only six streets. The selected streets offer a good range of comparable issues.



* This placement is based on the following:
- 85th percentile of car doors observed opened to 9'6" from curb (per DPT field observations).
- Average width of bicycles is 2'.
- 6" clearance from door to bicycle handlebar is desired minimum "shy distance".

Figure 3. Plan View of Marking Placement

Locations of Study Markings

17th Street

eastbound

westbound

2nd Street

northbound

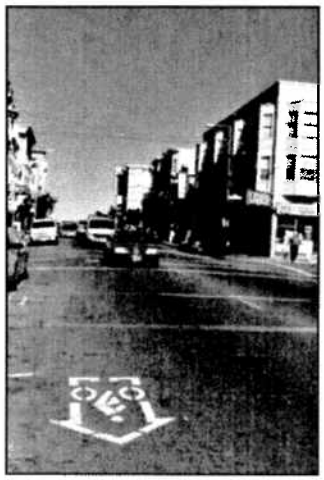
southbound

Market Street

westbound

eastbound

Polk Street



southbound

northbound

Stanyan Street

northbound

southbound

JFK Drive

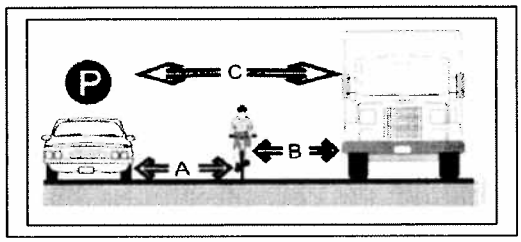
eastbound

westbound

Summary of Data Collection

Sample Size

- 6 locations
- 140 hours of videotaping
- "Before" study:
  - 1100 cyclists
  - 1000 motor vehicles
- "After" study:
  - 1300 cyclists
  - 1400 motor vehicles



Time of Study

- Spring-Summer 2003
- Various times during the day, depending on street

Variables Studied

- Number of travel lanes
- Traffic volume
- Curb lane width
- Location
- Time of day
- Marking type

Recorded Behaviors

- Cyclists' positions (A and B in the above diagram)
- Motorists' positions (B and C in the above diagram)
- Cyclist direction
- Cyclist location (street vs. sidewalk)
- Visible conflicts between cyclists and motorists

Note: Distances were measured to and from the tires of the car or bicycle. Based on review of the videotapes and the videographer's perceptions, the presence of the video camera did not seem to alter cyclists' or drivers' behaviors. However, the use of a video camera angled at oncoming cyclists did present a potential measurement error of up to 3 inches due to the inherent distortion of the view field. This measurement error could be eliminated in future studies through the use of an overhead-mounted camera or laser measurement device.

Results

Technical Results

Overall, the stencil markings significantly[2] improved both motorists' and cyclists' positions in the roadway (using the median average positions). The markings also reduced sidewalk and wrong-way riding.

Goal 1: Position of bicyclists and motorists

- Finding 1: Overall, the presence of a marking **increased the distance of cyclists to parked cars by 8 inches.** The effect of each marking on position was similar (see Figure 4).

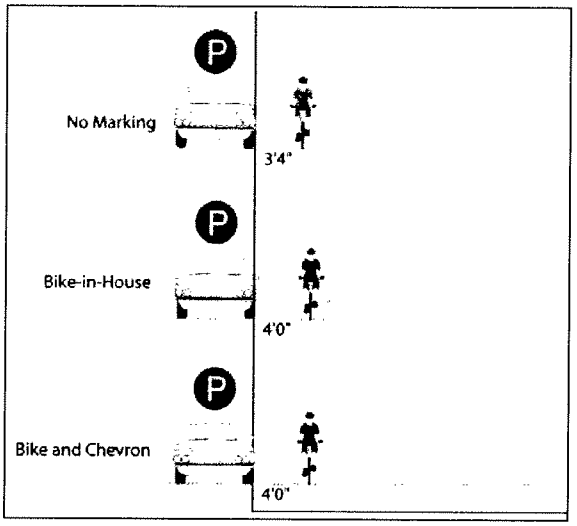


Figure 4. Effect on Bicycle to Parked Car Spacing

- Finding 2: When passing vehicles were present, the markings caused an **increase of 3 to 4 inches in the distance between cyclists and parked cars.** In addition, the markings caused an **increase of over 2 feet in the distance between cyclists and passing vehicles.** The bike-and-chevron had a greater effect (by 3 inches) on the distance between cyclists and passing vehicles (See Figure 5).

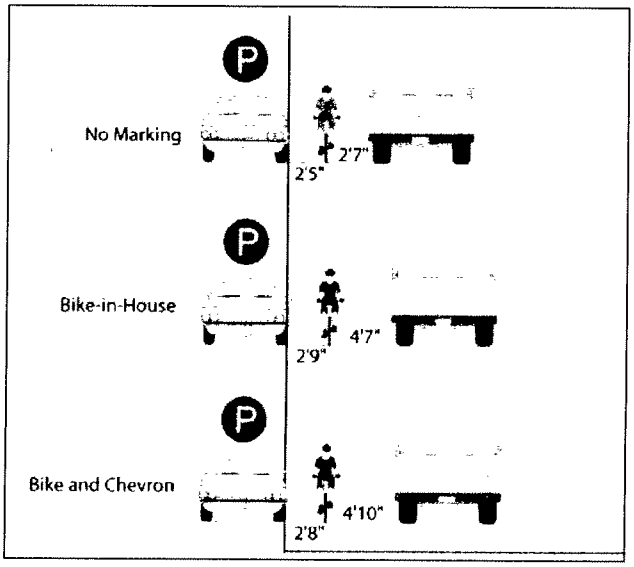


Figure 5. Effect on Motorist and Bicyclist Spacing

[2] The use of the term, "significant" means that the observed change was the result of a change in the variable (i.e., the pavement marking), as opposed to normal variance in the measurements. Significance has been determined through the use of a variety of statistical tests and tools including χ^2 (chi-squared) tests and multiple linear regression where appropriate. The χ^2 tests were used to compare the before/after results for behaviors such us cyclists' location and direction. Linear regression was used to analyze the measured results in relation to the markings.

(Goal 1 Continued)

- Finding 3: When no cyclists were present, both of the markings had a significant positive effect of about one foot on the distance between passing vehicles and parked cars (see Figure 6).

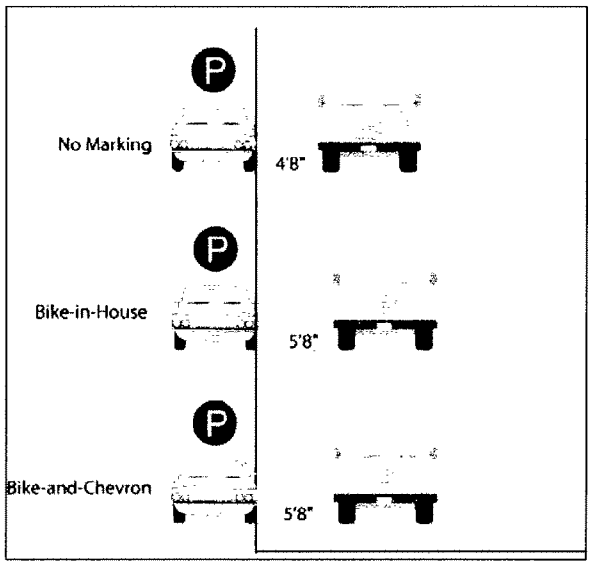


Figure 6. Effect on Motor Vehicle to Parked Car Spacing

Goal 2: Reduction in aggressive motorist behavior

- The markings neither significantly reduced nor increased the number of observable hostile behaviors between bicyclists and motorists. This was primarily due to the low number of aggressive behaviors recorded in the "before" videotapes.

Goal 3: Reduction in improper bicycle behavior

- Both the markings significantly reduced the number of sidewalk riders: the bike-and chevron by 35% and the bike-in house by 25%.
- The bike-and-chevron marking significantly reduced the number of wrong-way riders by 80%. The bike-in-house marking did not have any significant impact on the percentage of wrong-way riders.

Table 2 provides a summary of these findings. Complete results are on file with the San Francisco Department of Parking and Traffic's Bicycle Program.

Table 2. Summary of Bicyclists' and Motorists' Behavior

Behaviors	Before (No marking) sample size=1158	After Bike-in-House sample size=570	After Bike-and-Chevron sample size=794
Sidewalk riders	6.5%	**4.9%**	**4.2%**
Wrong-way riders	3.0%	3.3%	**0.60%**
Hostile behaviors	0.15%	0.17%	0.12%
Distance of cyclists to parked cars	3'4"	4'0"	**4'0"**
Distance of cyclists to cars in travel lanes	2'7" sample size=150	**4'7"** sample size=59	**4'10"** sample size=150
Distance of cars in travel lane to parked cars (no bike present)	4'8"	**5'8"**	**5'6"**

Significant differences are indicated in **boldface**.

Variables Influencing Results

Various factors contributed to these study results, including:

- Number of travel lanes
- Traffic volume
- Curb lane width
- Time of day (AM Peak/PM Peak/weekday midday/weekend)

Each variable was classified in two groups (such as high/low, narrow/wide, or AM/PM). The median and mean average distances were isolated and cross-tabulated for different factors and were compared to see if the variables had an effect on distances between cyclists, parked cars, and passing cars. Table 3 summarizes the characteristics' effects on cyclists and motorist positions. A complete listing of the cross-tabulated results is on file with the SF DPT Bicycle Program.

Table 3. With Markings in Place, Significant Street Characteristics Affecting Behavior

Factor	Effect on Distance between Bicyclists and Parked Cars	Effect on Distance between Bicyclists and Passing Vehicles
More lanes (4 vs. 2)	increase	decrease
Higher traffic volume	no effect	no effect
Wider curb lane	decrease	increase
AM vs. PM	no effect	no effect
Peak Periods	decrease	decrease

In comparing the effects of the markings on rider position on streets with different characteristics, the study found that:

- The markings have a **greater effect on distance** between cyclists and parked cars **on four lane roads** than on two lane roads.
- The markings have a **greater effect on distance** between cyclists and parked cars on **heavy volume roads** than on moderate volume roads lane roads.
- Curb-lane width and time of day did not have a significant effect on how much the markings changed behavior.

Table 4 summarizes the findings of each of the markings.

Table 4. Summary Comparison of Markings

Study Issues	Bike-in-House	Bike-and-Chevron
1. Did the marking increase the distance of bicyclists from adjacent parked cars?	YES	YES
2. Did the marking increase the distance between passing motorists and cyclists?	YES	YES
3. Did the marking reduce observable hostile behaviors?	UNDETERMINED[1]	UNDETERMINED[1]
4. Did the marking reduce incidences of sidewalk riding?	YES	YES
5. Did the marking reduce incidences of wrong-way riding?	NO	YES

[1] There were too few incidents to reach a statistical conclusion.

Cyclist and Driver Survey Results

Staff and volunteers surveyed 103 San Francisco cyclists and 23 motorists about the bicycle markings at three locations: Polk Street, 2nd Street, and Market Street.[3]. Approximately equal numbers of surveys were collected for both kinds of markings (see Table 5.)

Table 5. Surveys Completed

Location	Marking Type				Sub-Totals		Totals
	Chevron		Bike-in-House				
	Cyclists	Drivers	Cyclists	Drivers	Chevron	Bike-in-House	
Market St.	20	--	45	--	20	45	**54**
Polk St.	7	11	8	12	18	20	**38**
2nd St.	23	--	0	--	23	0	**23**
Totals	**50**	**11**	**53**	**12**	**61**	**65**	**126***

The survey queried bicyclists' and drivers' understanding and perception of the markings. The results were coded in Microsoft Excel and analyzed using SPSS Statistical Software. Complete results are on file with the SF DPT Bicycle Program.

In summary, the bicyclists surveyed see the markings as a step in the right direction and felt that the markings increased their sense of safety. However, the intended message of the markings was not fully understood. This could be remedied through a public information campaign.

The majority of the drivers surveyed claimed not to notice the markings. Since the sample size of drivers was so small, the results do not provide conclusive findings. Of the drivers that noticed the markings, there was no significant advantage of one marking over the other, but the drivers did not seem to confuse the markings with bike lanes.

[3] Surveys were administered roughly a half-block "downstream" of the markings during weekday peak travel times. The surveyors asked approaching cyclists if they would fill out the surveys on the spot (no surveys were mailed). Small warning signs (with the words, "Bike Surveys") were placed about 50 feet before the surveyors. About 25% of passing cyclists filled out the survey, which took an average of three to four minutes to complete. Drivers were surveyed as they arrived to their respective destinations along Polk Street.

Location and Rider Characteristics

Since most of the surveys were conducted on major commute routes during peak times, recreational and beginner cyclists are under-represented. Practically all of the interviewed cyclists categorized themselves as either intermediate (25%) or advanced (74%) urban cyclists. Typically, these cyclists are more likely to "take the lane" in urban traffic situations. Most of the cyclists were commuting to/from work (63%) or riding for utilitarian purposes (25%). Practically all of the cyclists were between the ages of 19-60 (60% 19-35 years old, 38% 36-60 years old).

Message

- Many cyclists believed that the markings indicated that the right lane served as a bike route or lane or that bikes have priority (30%) (see Figure 7).
- About 15% of cyclists felt that the marking indicated that bicyclists were allowed full use of the travel lane. 75% of these "take the lane" respondents had ridden over the bike-in-house marking.
- A few cyclists thought that the marking signified that a bike lane would be installed at the location in the future (2%).
- Of the motorists that responded, two out of the seven that noticed the markings understood that the marking indicate that they should allow more room for cyclists.

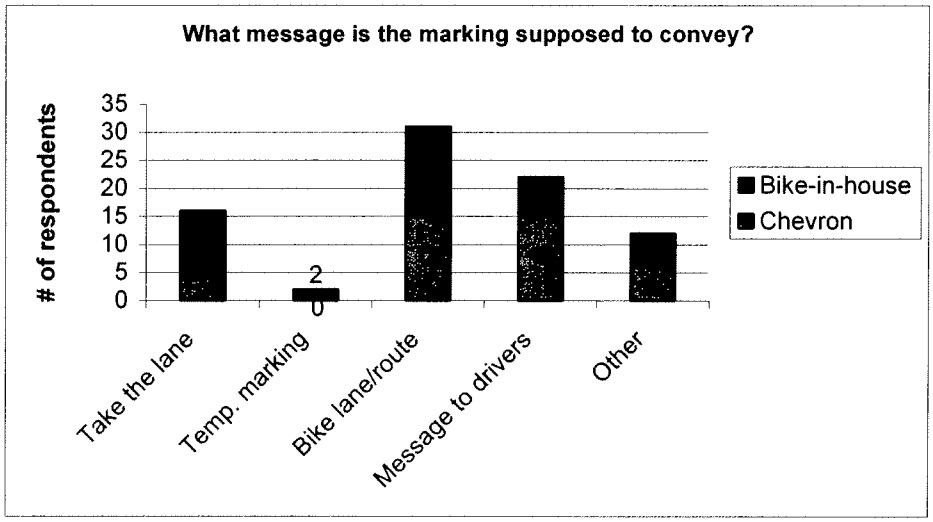


Figure 7. Cyclists' Responses to Survey - Message

Perception of Impact on Behavior

- Of the riders who noticed the markings, 33% felt that they did not change their position.
- Of the 33% of cyclists that felt that the marking affected their position (See Figure 8), 100% said that they rode closer to the center of the lane, often over the center of the marking.
- 60% of cyclists felt that the markings increased their sense of safety (See Figure 9).
- 35% felt that the marking improved driver behavior, 36% felt that the marking had no impact on driver behavior, and 29% were unsure (See Figure 10).
- Of the drivers, one-third felt that the markings improved their behavior.

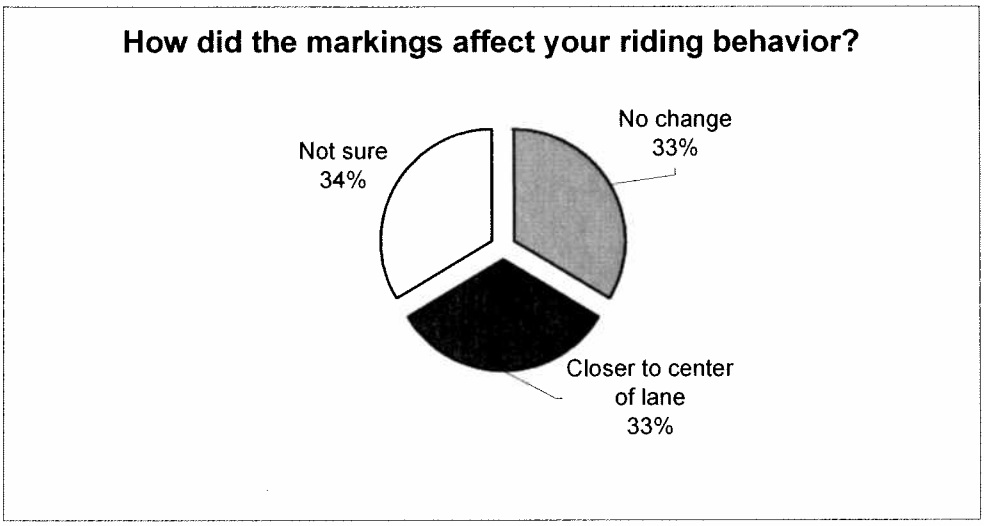


Figure 8. Cyclists' Responses to Survey - Riding Behavior

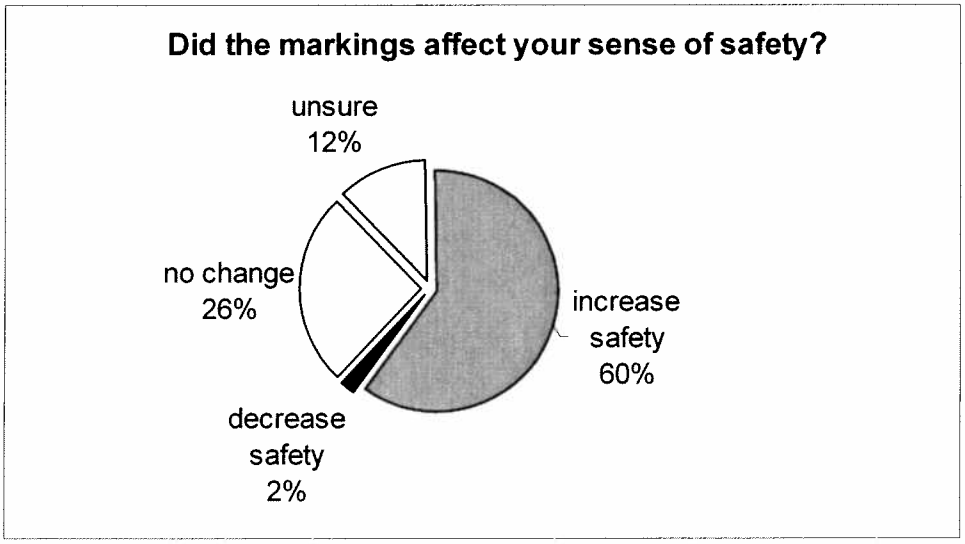


Figure 9. Cyclists' Responses to Survey - Sense of Safety

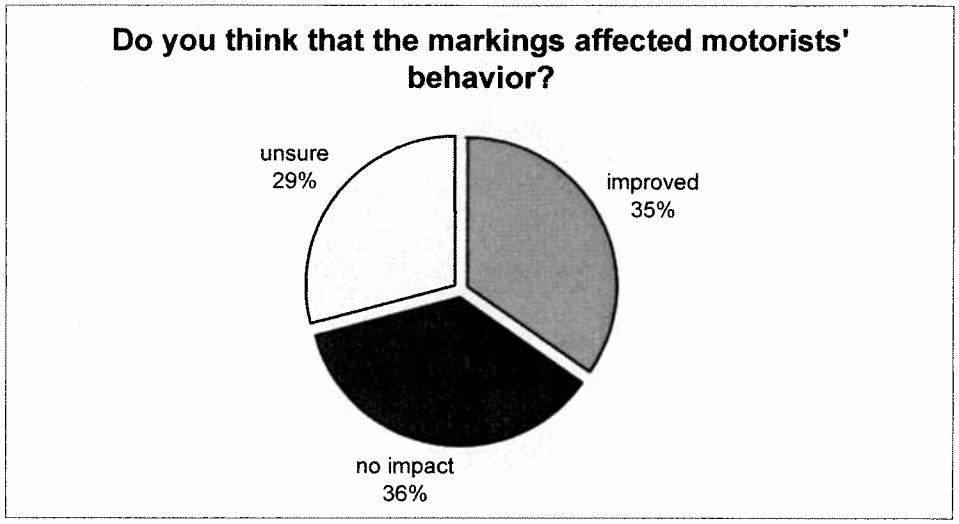


Figure 10. Cyclists' Responses to Survey - Motorists' Behavior

Visibility

- Of the 105 surveyed cyclists, 76 (72%) noticed the markings. About the same percentage of cyclists noticed each of the markings. When prompted, cyclists preferred the bike-and-chevron marking over the bike-in-house marking by a two to one ratio.
- Many cyclists also commented that the large, white markings are more visible and preferable to the green bike-in-house markings painted on San Francisco streets in the past.
- Of the 23 motorists that were surveyed on Polk Street, only seven (30%) noticed the markings. None of the respondents mentioned a preference for either marking. It should be noted that from the perspective of the driver, the chevrons appear "flat." Several cyclists made this comment as well. Many of the motorists felt that there was not enough room for cyclists on Polk Street.

Conclusion

This research has proven that shared lane pavement markings in San Francisco have a positive impact on motorist and cyclist behavior, positions, and safety. These results are complementary to a 1999 Florida study (Florida Department of Transportation, *Evaluation of the Shared-Use Arrow*). While both studies found that such markings significantly reduce wrong-way and sidewalk riding, the Florida study found a much smaller impact on cyclists' positions. In contrast to San Francisco, the Florida study measured rider positions on roadways with no on-street parking, and on streets where cyclists were less likely to "take the lane".

The bike-and-chevron marking had a stronger impact on motorist positioning and in reducing wrong-way riding and is preferred by cyclists surveyed. **Based on these findings, the project team recommends the bike-and-chevron marking be used as a standard marking for shared-use lanes on appropriate streets in San Francisco.** Based on comments received, the pitch of the chevron should be increased by approximately 6 inches (see Figure 11.) The project team also recommends that the California Traffic Control Devices Committee adopt this marking as an optional marking for Class III bikeways throughout California.

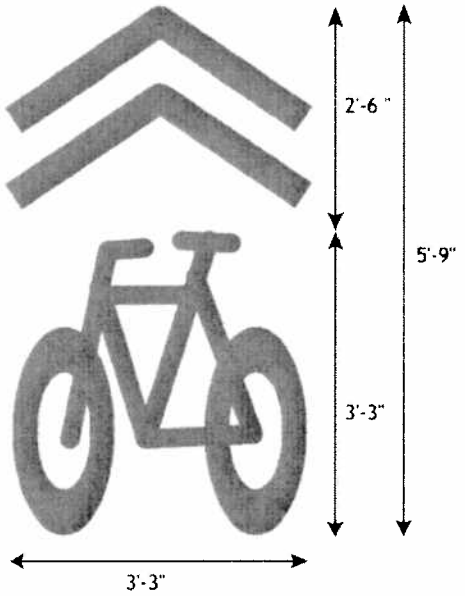


Figure 11. Recommended Modified Bike-and-Chevron

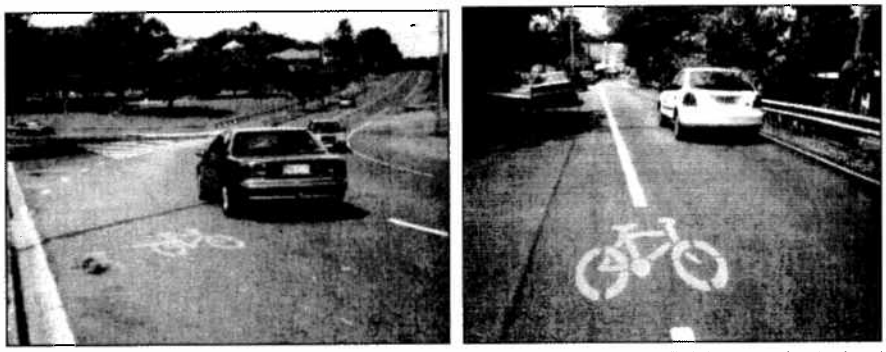
Appendix A: Pavement Markings in Other Cities

Various symbols have been tried by cities in the U.S., Europe and Australia. The symbols have been installed where bike lanes cannot be installed for various reasons including:

- Not enough cyclists;
- Too expensive;
- Requires loss of parking; and/or
- Requires road widening or other unacceptable trade-off.

To better understand these bicycle pavement symbol efforts, staff gathered information regarding (a) their use, (b) their effectiveness, (c) preferred installation locations, and (d) types of material, size, and color used. This report is a summary of the information gathered from:

- Brisbane, Australia
- Chicago, Illinois
- Oakland, California
- Denver, Colorado
- Cambridge, Massachusetts
- Paris, France
- Portland, Oregon
- Gainesville, Florida
- Warren and Waitsfield, Vermont
- Las Vegas, Nevada.

Location:	**Brisbane, Australia**
Photo:	
Size/Shape:	The idea is derived from the 4'0" wide Denver arrow, but instead Brisbane adopted a 1200-1500 mm wide yellow bicycle symbol as shown above.
Color:	Yellow (was considered an advisory color; distinguishable from the mandatory white bike lane symbols also in use)
Material:	Paint
Source:	Michael Yeates, Convener, Cyclists Urban Speed limit Taskforce, An initiative of the Bicycle Federation of Australia Inc ph +61 7 3371 9355, michaelm@myoffice.net.au , www.yeatesit.biz/transfiles/bfaurbanspeedlimits.pdf
Other Sources:	Bicycle Federation of Australia. Associated report "Towards A Safe Urban Speed Limit: Report Of The Cyclists Urban Speed Limit Task Force": www.bfa.asn.au/cyclist/201speed.htm City of Brisbane, Australia. "Making Space For Cyclists By Sharing The Road: Brisbane City Council's "Bicycle Friendly Zone" report: www.brisbane.qld.gov.au/getting_around/bikes/bikeways/signs.shtml www.ourbrisbane.com/brisbane/traffictrans/bicycles.htm
How Used:	A yellow bike symbol system has been under development on Brisbane streets since 1995. They are called Bicycle Friendly Zones (BFZ). On existing roads where there is not enough space to provide a bike lane, BFZs are created to alert motorists of "the likely travel corridor for bicyclists". These zones are marked with a yellow bicycle symbol that warns other road users that cyclists commonly use the route. The intention is to clearly delineate the parking

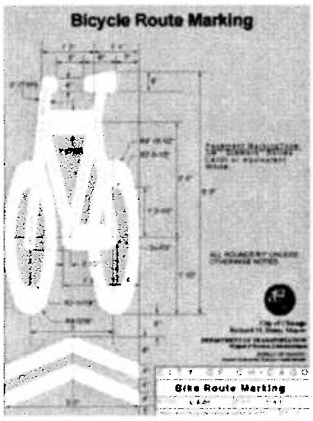
areas so that the areas between the parked vehicles and the through traffic can be utilized by cyclists. The reduced speed (50km/h) and the bike symbols show where cyclists are expected. The yellow symbols are placed (using standard road-marking stencils) 1800-2000 mm from the curb where parking is allowed, and closer to the curb where there is no parking. On single lane roads where edge lines are installed, the lines are regularly broken to accommodate the yellow bike symbols (see photo). In all cases, the symbols are repeated at regular intervals on the road.

According to the Bicycle Federation of Australia, the major benefit of the BFZ is adaptability. It can be used to "make room for the cyclists" in combinations of lower speed areas in areas such as shopping strips to reduce traffic speed by integrating all relevant urban design elements. Used in various combinations, it preserves space for cyclists without "separation", an example of "sharing the road". From a technical perspective, correct placement of the BFZ allows its use on roads that, if bike lanes were used, would require widening traffic lanes that, according to traffic design theory, results in increased speed of the adjoining traffic. The development and use of the BFZ illustrates the relationship between speed limits, speeding, perceptions of safety and provision of facilities. Despite not being able to reduce the speed limit on main roads from 60 to 50km/h, reduced traffic speeds when cyclists are present have been achieved by use of the BFZ.

Effectiveness: Brisbane's use of the bike symbols has been an ongoing "trial" without any specific evaluation processes. To see if the concept worked intuitively or subjectively, no education was provided before or after the installation of the symbols. Michael Yates believes that they appear to be working intuitively and no negative effects have been identified.

Location: **Chicago, Illinois**

Photo:



Size/ Shape: 5' 9" high by 3' 3" wide bicycle above 1' 8" high by 3' 3" wide double chevron. Randy Neufeld modeled it after a design photographed in Paris a couple of years ago by a Chicagoland Bicycle Federation member. (Bike-in-House symbols previously installed in 1999 were considered too small to be understood by cyclists.)

Color: White

Material: They upgraded their symbols to an intersection grade quality material in 2002. In general, their 3M thermoplastic symbols have lasted 5 years or more, depending on wear.

Source: Nick Jackson, Director of Planning, Chicagoland Bicycle Federation
(312) 427-3325 x 27, nick@biketraffic.org

How Used: The symbol has been used by the Chicago DOT Bike Program in two places for shared lanes, both short connections between bike lanes. It is also planned for use in conjunction with directional signage to lead cyclists across large intersections to a facility in an area where many cyclists ride on the sidewalk.

Effectiveness: unknown at this time

Location: **Oakland, California**

Photo: Not available

Size/ Shape: Not available

Color: White

Material: Paint

Source: Kathryn Hughes, City of Oakland Public Works Agency, Transportation Services Division ph 510-238-6493, khughes@oaklandnet.com

How Used: White bike stencils were placed on a shared-use connecting link between two bike lanes on Grand Avenue in Oakland. The project is called the Grand Avenue Commuter Bikeway. The bike lanes extend from El Embarcadero to Webster, then the stencils/shared lane from Webster to Broadway, and bike lanes from Broadway to Market. SG 45 signs were also installed on the entire route and Share the Road signs on the stenciled portion.

Effectiveness: unknown at this time

Location: **Denver, Colorado**

Photo:

Size/ Shape: Bike-in-a-house design (the original, designed by James Mackay), 4' 3" long x 4' 0" wide, with a left-bound cyclist

Color: White

Material: One of the reasons for the "Bike in the House" symbol was to reinforce the correct direction of travel. Additionally, there was a desire to reduce the typical pavement marking costs of bike lanes. The original symbols were painted, but since the paint abraded away quickly from winter sanding operations, they have been replaced with thermoplastic solid outlined symbols as shown above (cost is $50 each).

Source: James Mackay, P.E., Denver Bicycle Planner, 201 West Colfax Avenue, Department 509, Denver, CO 80202, ph 720-865-3171, fax 720-865-2676, James.Mackay@ci.denver.co.us http://www.denvergov.org/Bicycle_Program/59810116template3jump.asp

How Used: As part of Denver's 1993 Bicycle Master Plan development, a "Shared Use Lane Pavement Marking Arrow", commonly called the "Bike in the House", was designed. The symbols are used in shared use lane conditions where bike lanes are not provided, but where it is desired to define the likely travel corridor for bicyclists. Symbols are placed approximately every 180 feet on-center along roads, often with "Share the Road" signs. They are placed so the center of the arrow is 9' 6" off the curb line with an adjoining 7 foot parking stall.

Effectiveness: Not available

Location: **Cambridge, Massachusetts**

Photo:

Size/ Shape: Bicycle stencil placed in a break of a continuous white line

Color: White

Material: Paint

Source: Cara Seiderman, cseiderman@Spike.CI.Cambridge.MA.US
Wayne Amaral, Cambridge Traffic Department, (617) 349-4723
Bryce Nesbitt, Bicycle Committee member, bryce2@obviously.com

How Used: Pavement markings have been installed on Mt. Auburn Street in Cambridge. The travel lane is 11 feet and the guideline is 10' out from the curb.

Effectiveness: No formal study completed yet, but these comments were passed on:
"I find this lane treatment highly appropriate for intermediate width streets (too narrow for a full bike lane, too wide for cyclists to take the entire lane). In particular I find:
"1. It seems to keep cyclists out of the door zone. Cyclists ride within inches of the line.
"2. Motorists don't seem to get mad when a cyclist deviates from the line. With conventional double-stripe bike lanes, motorists often seem to insist that bikes stay within the bike lane. This does not happen on Mt. Auburn."

Location: **Paris, France**

Photo:

Size/ Shape: Similar to the Chicago, IL symbol (5' 9" high by 3' 3" wide bicycle above 1' 8" high by 3' 3" wide double chevron)

Color: White

Material: Thermoplastic

Source: Marc Jolicoeur, Research Coordinator, Velo Quebec
tel.: (514) 521-8356 #394, fax: (514) 521-5711, marc_jolicoeur@velo.qc.ca

How Used: The city of Paris is using arrows and bike symbols repeated along the line of travel of cyclists in intersections, about the same way colored lanes have been used in Portland and Montreal.

Effectiveness: unknown at this time

Location: **Portland, Oregon**

Photo:

Size/ Shape: Standard markings for inside bike lane

Color: White

Material: Thermoplastic

Source: Mia Birk, Principal, Alta Planning + Design, 144 NE 28th Avenue, Portland OR 97232
ph (503) 230-9862, fax (503) 230-9864, cell (503) 238-4745, miabirk@altaplanning.com

How Used: Portland used the bike lane marking without the bike lane line in one case in February 1998. This case involves a street with bike lanes that lead up to a 26' wide bridge, on which there is not adequate room for bike lanes. The city retained the marking on the outer 3' of each of the

13' lanes to encourage motorists to travel toward the left of the lane.

Effectiveness: No specific study. Anecdotal evidence suggests that motorists are indeed giving cyclists room: the markings are still there after almost five years of application and show little signs of motorists' driving on them.

Location: **Gainesville, Florida**

Photo:

Size/ Shape: bike-in-a-house, 4' 0" wide x 6' 0" long

Color: White

Material: Paint

Source: Dennis Scott, Florida Pedestrian and Bicycle Coordinator
ph (850) 410-4927, dennis.scott@dot.state.fl.us

How Used: Their shared-use arrow was intended to address deficiencies in wide outside curb lane bike facilities. The wide curb lanes are frequently not recognized as a facility by bicyclists. The shared-use arrow informs the cyclists about where to ride and in which direction. The symbols were put down as part of a November 1999 usage evaluation, performed by the University of North Carolina Highway Safety Research Center (HSRC), to compare the riding positions of bicyclists and the position of motorists on sections marked with the shared-use arrow to unmarked sections.

The arrow was placed by Gainesville Public Works at 3.5 feet from the curb face at four locations along 13th Street (US 441). In this study area, 13th Street has 4 lanes, a 30 mph speed limit, and carries approximately 35,000 vehicles per day. The four locations were examined using videotaping equipment to record bicycles and motor vehicles.

Effectiveness: For this evaluation, the measures of effectiveness pertained to before and after measurements of bicycles and motor vehicles from the curb and from each other. Bicycle to Curb was the only measurement that showed a statistically significant difference between the BEFORE and AFTER conditions. Although the difference between the BEFORE mean measurement of 1.58 feet and the AFTER of 1.83 feet was statistically significant, this .25 feet (1.83 - 1.58), or 3 inches, is not practically significant. This does not represent enough of a meaningful shift in distance for real world application. Furthermore, this amount may fall within the measurement error of the software/data reducer, especially considering that BEFORE measurements were made with the bicyclist farther from the camera. More trials in other locations are recommended and should result in more conclusive findings.

Location: **Warren and Waitsfield, Vermont**

Photo: Not available

Size/ Shape: Bike-in-a-house design (4' x 4' approximately – some maybe smaller due to narrow shoulders of 3' or less)

Color: White

Material: Paint

Source: Amy Bell, Vermont Bicycle and Pedestrian Coordinator, ph (802) 828-5799

How Used: Symbols were placed experimentally along the shoulders of a scenic tourist 4.5 mile stretch of US Route 100. Share the Road signs were installed with the pavement symbols. The symbols have not been replaced since their first application, and many are worn away, covered over or scraped off from winter equipment. The signs are still in place.

Effectiveness: No specific study. Casual verbal survey of approximately 200 local citizens and 50 bicyclists led to conclusion that bicyclists felt the symbols were too small to be effective and local drivers rarely noticed them. The Vermont DOT decided to not encourage their use, to not replace them, and to not include them in future plans

Location: **Las Vegas, Nevada**

Photo: Not available

Size/ Shape:	MUTCD standard bicyclist and arrow symbol
Color:	White
Material:	Retroreflective film with glass beads
Source:	Mike Colety, P.E., Kimley-Horn and Associates ph (702) 862-3609, fax (702) 735-4949, mike.colety@kimley-horn.com
How Used:	Pavement stencil markings are only used with bicycle lanes (not shared lanes
Effectiveness:	Not available

Location:	**Sacramento, California**
Photo:	Not available
Size/ Shape:	Not available
Color:	White
Material:	Paint
Source:	Ed Cox, Alternative Modes Coordinator, City of Sacramento, ph (916) 264-8434, fax (916) 264-8357, ecox@cityofsacramento.org
How Used:	For several years Sacramento has been using a painted arrow and legend that says "Bike Route". It is almost identical to markings used for bike lanes (Highway Design Manual figure 1004.3) that says "Bike Lane". Sacramento's symbols are used for streets that are on their Bikeway Master Plan, primarily on Class 3 routes where they are combined with the Green and White Bike Route signs (California State Department of Transportation, Caltrans, G93). They have also put them on streets where it was not possible to install Class 2 bike lanes.
Effectiveness:	No study. They do provide route guidance to bicyclists.

Other Locations

Freiburg, Germany

San Anselmo, California

Memo

CITY OF ASHLAND

Date: July 8, 2010
From: James Olson
To: Transportation Commission
Re: BICYCLE PARKING IN THE CENTRAL BUSINESS DISTRICT

On July 1, the Transportation Commission Subcommittee conducted a tour of the Ashland Central Business District to view the existing bike parking facilities and to identify locations where additional bike parking could be installed. The tour group included Subcommittee Chair Tom Burnham, Councilor Chapman, Brent Thompson, Steve Ryan and Bill Hyman. The group toured the plaza area and East Main and Lithia Way up to First Street.

The group identified several possible locations for both on-street and off-street parking and requested staff continue the identified pattern of identifying bike parking areas. Some of the areas identified as being capable of supporting additional bike parking included:

- Former Tree of Heaven area near the southwest corner of City Hall;
- On the new curb bumpout to be constructed at Mix Sweet Shop;
- On sidewalk near the northwest corner of City Hall;
- On street in front of Bug-a-Boo, east of crosswalk;
- On street in front of Wells Fargo Bank near crosswalk;
- Off street area adjacent to the stone art work at the corner of Lithia and Pioneer;
- On street on the east side of Pioneer north of East Main Street;
- On street, Lithia Way in front of John L. Scott Realty;
- On street on the Westside of Pioneer, south of the Shakespeare crosswalk;
- Possible locations for bike parking within the Hargadine Parking Structure;
- On street parking in front of Varsity Theater.

The above locations were suggested for further review and study by staff. Staff will also complete a thorough review of the entire downtown area and will bring back a comprehensive list of likely areas for additional bike parking in both on-street and off-street locations.

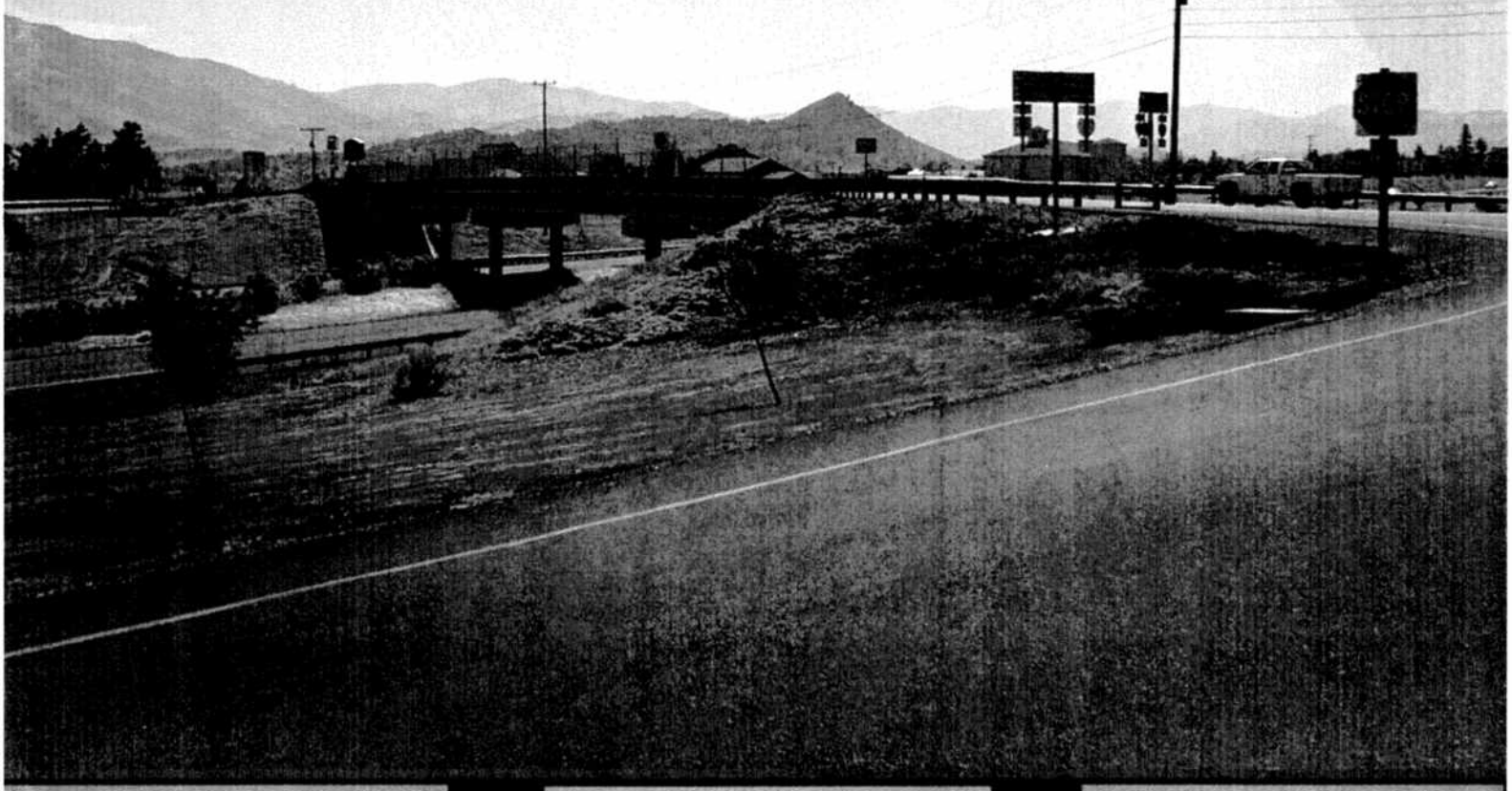
ENGINEERING DIVISION
20 E. Main Street
Ashland OR 97520
www.ashland.or.us

Tel: 541/488-5347
Fax: 541/488-6006
TTY: 800/735-2900

LOCATION	NOTES	PRIORITY
Plaza Island, where "wheelbenders" were removed	**Five** U-racks, maintain clearance between adjacent covered spaces	1
51 North Main Street	Install to maintain 6' sidewalk clearance	1
29/31 North Main (in front of Mountain Supply)	Center on white line between parking spaces	1
11 North Main Street	Near street tree	1
40 East Main (in front of Bugaboo)	At yellow curb	2
40-ish East Main Police Substation/Kiosk	**SKATEBOARD RACK**	2
20 East Main (in front of City Hall)	Additional rack at yellow curb	2
42 East Main	At yellow curb	2
60 East Main	At transition from white to green curb, between street light and meter	2
68 East Main	Where old holes indicate there was previously a rack	2
Up Pioneer from intersection of Main/Pioneer	Two U-racks at lower end of Pioneer (west side)	2
Up Pioneer from intersection of Main/Pioneer	At yellow curb	2
Thai Pepper	At yellow curb	3
Agave	At yellow curb	3
142 East Main (Earthly Goods)	At yellow curb	3
166 East Main	At yellow curb	3
250 East Main	At white curb, by street light	3
264 East Main	Transition from white to green curb, next to street tree	3
296 East Main	At yellow curb, next to clean out cover	3
344 East Main	At yellow curb	3
283 East Main	At yellow curb	3
295 East Main	At yellow curb	3
358 East Main to 372 East Main	Move existing rack from in front of Past Piatti to the green curbed area in front of the Laundromat to allow more clearance for outdoor dining.	3
Library Bus Stop	**SKATEBOARD RACK**	TBD
Behind Library next to Bike Racks	**SKATEBOARD RACK**	TBD
TBD	**SKATEBOARD RACK**	TBD

I-5 Interchange 14 (Green Springs)
Interchange Area Managment Plan

http://ashland.or.us/Page.asp?NavID=13166



June 2010 DRAFT

I-5 Interchange 14 (Green Springs)
Interchange Area Management Plan

Prepared for

Oregon Department of Transportation

Oregon Department of Transportation, Region 3
3500 NW Stewart Parkway
Roseburg, Oregon 97470

Prepared by

DAVID EVANS AND ASSOCIATES INC.

David Evans and Associates, Inc.
2100 SW River Parkway
Portland, Oregon

June 2010 DRAFT

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List of Acronyms

ATMS	Advanced Traffic Management Systems
BLI	Buildable Lands Inventory
CIP	Capital Improvement Plan
CORP	Central Oregon and Pacific Railroad
EBR	Engineering Baseline Report
HDM	Highway Design Manual
IAMP	Interchange Area Management Plan
IC	Interchange Commercial
IGA	Intergovernmental Agreement
ITS	Intelligent Transportation Systems
LOS	Level of Service
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
OBDP	Oregon Bridge Delivery Partners
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
ORS	Oregon Revised Statutes
OTP	Oregon Transportation Plan
RTP	Regional Transportation Plan
RVCOG	Rogue Valley Council of Governments
RVITS	Rogue Valley Intelligent Transportation Systems
RVMPO	Rogue Valley Metropolitan Planning Organization
SDC	System Development Charge
SPIS	Safety Priority Index System
SPUI	Single Point Urban Interchange
TAR	Traffic Analysis Report
TAZ	Transportation Analysis Zones
TDM	Transportation Demand Management
TMA	Transportation Management Association
TOC	Traffic Operations Center
TOD	Transit Oriented Development
TPAU	Transportation Planning Analysis Unit
TPR	Transportation Planning Rule
TSM	Transportation System Management
TSP	Transportation System Plan
UGB	Urban Growth Boundary
V/C	Volume to Capacity

EXECUTIVE SUMMARY

The existing bridge at I-5 Interchange 14 will be repaired and improved with funding provided by the OTIA III State Bridge Delivery Program. The bridge repairs will consist of a rehabilitation of the deck and bridge rails. Traffic signals will be installed at the ramp terminal intersections, and the bridge will be widened to provide three traffic lanes, bicycle lanes, and 7-1/2-foot sidewalks on both sides. The construction is scheduled to begin in mid 2010 and be completed by mid 2012.

As outlined in Oregon Administrative Rule (OAR) 734-051-0155(7), an Interchange Area Management Plan (IAMP) should be developed when there are substantial modifications to interchanges. Public investments for major interchange improvements are very costly and it is in the interest of the State, local governments, citizens of Oregon, and the traveling public to ensure that the interchange functions as it was designed for as long a time period as possible.

Development of this IAMP is the planning process intended to assess existing and potential land use and transportation conditions, opportunities and limitations, identify long-range needs, and identify recommended improvements to the Green Springs Interchange (I-5 Interchange 14). This process includes identifying necessary improvements to the local street network in the vicinity of the interchanges to ensure consistency with operational standards.

Problem Statement

The bridge structure, constructed in 1961, has been deemed structurally and geometrically deficient due to cracked cross beams, poor deck condition, narrow bridge width, substandard bridge railing, and substandard vertical clearance. Additionally, there are currently no provisions for bicycle and pedestrian traffic.

Analysis of existing and projected future traffic volumes show that the existing bridge and ramps are functionally obsolete to adequately serve the long-range transportation needs. Significant queuing and delay currently exists on several unsignalized approaches. As the area grows and traffic volumes increase, queuing and delays are expected to increase if no improvements are made to the interchange and the transportation system in the vicinity. The crash rate at the interchange is higher than the statewide average rate for comparable facilities, and the site ranks in the top ten percent of ODOT Safety Priority Index System (SPIS) sites.

There are numerous public and private approaches to Ashland Street within a quarter-mile of the interchange ramp terminals. These approaches create potential vehicular conflicts and delay that may impact safety and traffic operations at the interchange.

IAMP Goals and Objectives

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to improve safety and operations of Interchange 14, identify adequate local street network improvements, and protect the investment in I-5 and its interchanges by maintaining the function of the interchange.

The IAMP objectives include identification of necessary capacity improvements; the evaluation of several alternatives; the development of an access management plan; and the development of management measures to protect the long-term function of the interchange.

The IAMP goals and objectives acknowledge that the purpose of the interchange is to serve all modes of travel, not just automobiles.

Alternatives Analysis

The development of the IAMP included extensive traffic operations analysis of seven interchange alternatives (including no-build) under three different future land use scenarios. Traffic operations analysis was also performed for each of the scenarios at four intersections on Ashland Street within one quarter mile of the ramp terminal intersections. The analysis found that the existing interchange configuration would not adequately accommodate anticipated future traffic volumes. Each of the alternative configurations provided superior traffic operations compared to the existing configuration.

Although each of the interchange configurations would provide adequate traffic operations at the interchange, some improvements to nearby intersections, including capacity enhancements and access management measures, may be necessary to manage future traffic volumes. Additionally, improvements to local street connectivity in the management area are recommended to reduce the need for local trips to use Ashland Street and to provide options for alternative travel modes.

1. DEFINITION AND BACKGROUND

As outlined in OAR 734-051-0155(7), an Interchange Area Management Plan (IAMP) is "required for new interchanges and should be developed for significant modifications to existing interchanges." Public investments for new interchanges and major improvements to existing interchanges are very costly and it is in the interest of the State, local governments, citizens of Oregon, and the traveling public to ensure that the interchange functions as it was designed for as long a time period as possible.

The IAMP is intended to assess existing and potential land use and transportation conditions, opportunities and limitations, identify long-range needs, and identify recommended improvements to the Green Springs Interchange (I-5 Interchange 14). This process includes identifying necessary improvements to the local street network in the vicinity of the interchanges to ensure consistency with operational standards.

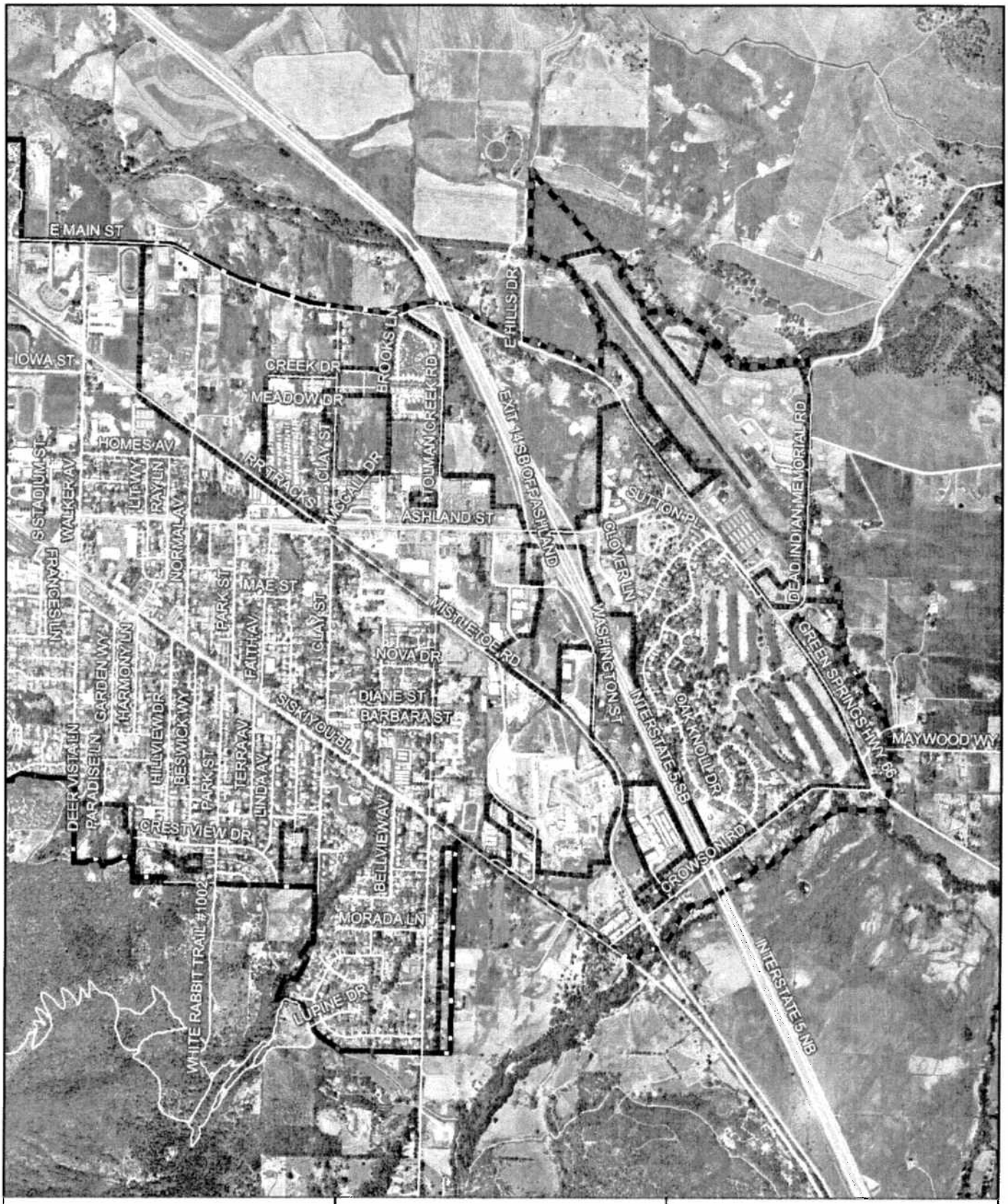
Strictly a planning document, the IAMP does not address aesthetic design associated with recommended improvements. For example, the report does not differentiate between a raised concrete median barrier and a landscaped median. One may be more appealing to the eye, but the IAMP does not differentiate between the two, since they would both perform the intended function. Aesthetic design issues are beyond the scope of the IAMP and are addressed through the design and construction process.

This IAMP follows detailed analyses conducted for preparation of the *Traffic Analysis Report for I-5 Interchanges 14 and 19* (TAR), dated August 22, 2006 and prepared by David Evans and Associates, Inc. The analyses summarized in the report were used to gain a better understanding of both the current and the future deficiencies of the two interchanges, and to examine the performance of a number of alternative interchange configurations under projected future traffic volumes. The TAR provides the basis for the Green Springs Interchange IAMP.

Planning and design for improvements to Interchange 14 began concurrently with IAMP development efforts. Although design and construction of these improvements may commence before the IAMP is complete, adoption of the IAMP by the OTC is still required under OAR 734-051-0155. Further, adoption of the IAMP by the City demonstrates a local commitment to the primary objective of this IAMP: the protection of the public investment in the interchange. Local adoption will also help justify additional management area improvements as they become necessary. The elements recommended for formal adoption as part of this IAMP are specified in Section 7 of this report.

Planning and Management Area

The Green Springs interchange, shown in Figure 1-1, is located within the Ashland city limits in the southeastern section of the city, although much of the land in the interchange vicinity lies outside the city limits but inside the Ashland UGB. The interchange is a standard diamond type.



1,000 500 0 1,000 Feet

GIS Data Source: Jackson County

Legend

- IAMP Management Area
- Ashland City Limits
- UGB

Interchange 14 (Green Springs)

Figure 1-1

Vicnity

Interchange Area Management Plan

Ashland Street (Green Springs Highway, OR 66) is the cross street, which connects with Siskiyou Boulevard (OR 99, Rogue Valley Highway) approximately one mile to the west. All four quadrants of the interchange area are developed.

The defined boundaries of the Interchange Area Planning and Management Area (Planning Area) include land where existing and future development has the potential to significantly affect the interchange function, capacity and performance standards. The Planning Area roughly coincides with existing transportation analysis zone (TAZ) boundaries. It also encompasses key roadways in the vicinity that relate to traffic operations at the interchange.

The west side of the Planning Area is bounded by Tolman Creek Road, Central Oregon and Pacific Railroad (CORP), and Clay Street to the west, Siskiyou Boulevard and the UGB to the south and the UGB to the north and east. The Planning Area consists of commercially zoned land on either side of the interchange. The remainder of the study area is composed of residential land; single and multi-family residential in the areas within Ashland city limits and rural residential in the areas outside city limits. Based on the existing density of development, it appears that a significant intensification could occur in the vicinity of the Planning Area.

Problem Statement

The bridge and interchange have a number of existing deficiencies.

Operational and Safety Deficiencies

The 2006 TAR provided traffic operations analyses at key intersections and freeway facilities in the planning area under both existing conditions (2006) and future no-build conditions (2010 and 2030). The TAR concluded that the existing bridge and ramps are functionally obsolete to adequately serve the long-range transportation needs.

An analysis of existing traffic operations showed that critical v/c ratios at both ramp terminal intersections exceed ODOT mobility standards. Queuing on both unsignalized exit ramps, and especially the southbound ramp, is significant because of limited gaps on Ashland Street for left turning vehicles, combined with substantial right turning volumes from the southbound ramp. The 95th percentile queue on the southbound exit ramp is calculated to extend into the deceleration area of the ramp. Left turning vehicles from eastbound Ashland Street to the northbound I-5 entrance ramp are delayed because of conflicts with high westbound through volumes. These delays result in queuing over the bridge that spills over into the southbound ramp terminal intersection.

An analysis of year 2030 no-build traffic operations showed that projected demand at both ramp terminal intersections would exceed the capacity of the intersections. Future operations are expected to be characterized by more delay and queuing on intersection and ramp approaches. Without mitigation, queuing on the southbound exit ramp will frequently extend into the deceleration area of the ramp, creating a safety problem. The increased demand for the eastbound left turn from Ashland Street to the I-5 northbound entrance ramp will generate

queues that extend through and well beyond the adjacent southbound ramp terminal intersection.

Compounding the operational problems at the ramp terminal intersections are the presence of many public and private approaches to Ashland Street very close to the interchange ramp terminal intersections. These public streets (Clover Lane and Washington Street) and private driveways create potential vehicular conflicts and delay that are likely to impact operations at the interchange. ODOT interchange area access spacing standards, as stated in OAR 734-051 (Division 51), specify that the first right-in/right-out approach shall be no closer than 750 feet from ramp terminal intersections, and the first full-access approach shall be located no closer than 1320 feet (1/4 mile) of ramp terminal intersections along the cross street. While Division 51 standards may not be fully attainable in a developed area such as this, it is desirable to move in the direction of the standards through access management techniques such as consolidation or elimination of accesses and implementation of turn prohibitions. The purpose of these implementation measures is to ensure long-term public safety and operations of the interchange and associated immediate local street network.

Structural and Geometric Deficiencies

The bridge structure (ODOT Bridge No. 08745) is a reinforced concrete deck-girder span constructed in 1961. Bridge improvements since have been limited to guardrail upgrades. An Engineering Baseline Report (EBR) was prepared in 2003 that listed the deficiencies associated with the bridge. The EBR recommended that the bridge be replaced and listed the following structural and geometric deficiencies:

- Cracks in cross beams ranging from hairline to 0.060"
- Poor condition of deck
- Low sufficiency rating of 23.1
- Substandard bridge railing
- Narrow bridge roadway width (Two 12-foot lanes with 4-foot shoulders); urban area with no sidewalks or bike facilities.
- Presence of roadside hazards including substandard guardrail to bridge rail connections and guardrail terminals.
- Repair / replace cost estimate ratio exceeds 50%
- Existing vertical clearance is less than 17.5 feet

The EBR assumed that a feasible replacement structure would be a five-lane structure, and estimated the replacement cost at approximately $7 million.

Bicycle and Pedestrian Deficiencies

There are currently no provisions for bicycle and pedestrian traffic. As noted previously, the interchange has urban development in all four quadrants, and bicycle and pedestrian facilities will be provided as part of the bridge reconstruction.

Goals and Objectives

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to:

- Improve safety and operations of Interchange 14 for all modes of travel;
- Improve safety and operations of the I-5 mainline;
- Identify adequate local street network improvements for all modes of travel; and
- Protect the investment in I-5 and its interchanges and maintain the function of the interchange.

The objectives of the IAMP are to:

- Evaluate the need for capacity improvements based on the adopted, comprehensive land use plans of Ashland, the Regional Transportation Plan, and the mobility standards prescribed in the Oregon Highway Plan (OHP), Highway Design Manual (HDM) and the Ashland Transportation System Plan (TSP).
- Evaluate concepts to improve safety and increase capacity of the interchange and roadways to address existing and future needs. The concepts that will be evaluated consist of the following:
  - No Build
  - Three-Lane Standard Diamond Interchange
  - Three-Lane Standard Diamond Interchange with Northbound Loop Ramp
  - Four-Lane Standard Diamond Interchange
  - Five-Lane Standard Diamond Bridge
  - Diverging Diamond Interchange
  - Single-Point Urban Interchange (SPUI)
- Develop an access management plan that provides for safe and acceptable operations on the transportation network and that meet, or move in the direction of meeting the access spacing standards prescribed in Division 51.
- Develop and evaluate potential management actions that have the potential to protect the future function, capacity, and mobility of the interchange.
- Identify the need for bicycle and pedestrian facilities.

Interchange Function

The Green Springs Interchange provides the main link between the I-5 corridor and the southern end of Ashland via Ashland Street, also known as the Green Springs Highway and OR 66. This crossroad also provides one of the few interstate crossings in the vicinity and carries significant local vehicle, bicycle, and pedestrian traffic volumes that do not enter or exit the interstate. The interchange also provides interstate highway access for local residents and businesses in the interchange vicinity.

Interstate 5 is classified as an interstate highway, a designated freight route and is on the National Highway System. The primary function of interstate highways is to serve inter-regional and interstate passenger and freight traffic. OR 66 is classified by the OHP as a District Highway. According to the OHP, the function of District-level highways is to "provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic."

The intended function of the Green Springs Interchange 14 is to safely and efficiently accommodate future vehicle, bicycle, and pedestrian traffic demands generated by population and employment growth in the region and within the City of Ashland.

City of Ashland
TRANSPORTATION COMMISSION
SUBCOMMITEE MEETING
Thursday, July 1, 2010
Siskiyou Room, 51 Winburn Way

Summary Minutes

I. CALL TO ORDER: 9:06 AM
Members: Tom Burnham (Chair), Steve Ryan, Brent Thompson
Staff: Mike Faught, Jim Olson, Nancy Slocum
Attendees: David Chapman, Bill Hyman

II. APPROVAL OF MINUTES: Minutes of June 3, 2010 were approved as submitted.

III. PUBLIC FORUM: None.

IV. ACTION ITEMS

A. Tour of Bike Facilities in Downtown

Faught informed the Subcommittee that standards for on-street bike parking have been approved by Council. The bike racks in front of Standing Stone were installed before the standard was adopted.

Ryan wondered if there was such a thing as too much bike parking. Faught explained that supply must stay ahead of demand.

Subcommittee toured the plaza area and East Main and Lithia Way up to First Street. They identified several locations for additional on-street and off-street parking and requested staff continue the identified pattern of identifying bike parking areas throughout the downtown. Some of the areas identified for further study by staff included:

- Former Tree of Heaven area near the southwest corner of City Hall;
- On the new curb bumpout to be constructed at Mix Sweet Shop;
- On sidewalk near the northwest corner of City Hall;
- On street in front of Bug-a-Boo, east of crosswalk;
- On street in front of Wells Fargo Bank near crosswalk;
- Off street area adjacent to the stone art work at the corner of Lithia and Pioneer;
- On street on the east side of Pioneer north of East Main Street;
- On street, Lithia Way in front of John L. Scott Realty;
- On street on the Westside of Pioneer, south of the Shakespeare crosswalk;
- Possible locations for bike parking within the Hargadine Parking Structure;
- On street parking in front of Varsity Theater.

In general the Subcommittee wanted to continue to clear the sidewalks for pedestrians, increase vehicle parking and increase bicycle parking on street.

B. Review of Parking Prohibitions - Tabled.

C. Pending Traffic Study at Grandview Intersection - Tabled.

V. OTHER

III. ADJOURN: approximately 11:15 am

homes and property in the City of Ashland.

If you have a location where you are concerned about weed abatement issues, please submit a complaint in writing using the form found on our website. Complaints will be addressed beginning June 16. Weed abatement requirements will be applied as indicated in Ashland Municipal Code 9.04 and penalties can include fines up to $500.

Additional information about weed abatement can be found at the City of Ashland's website - www.ashland.or.us/weedabatement. ▼

Work Zone Safety

With construction work picking up this summer, the Ashland Transportation Commission would like to remind drivers to be extra careful when traveling through work zones. The Oregon Department of Transportation offers the following tips for safe summer traveling:

❑ Pay complete attention to the driving task, especially in the transition zone before the work area.

❑ "Orange is your clue." Slow down when you see orange signs, barrels and barricades.

❑ Don't tailgate. Double your following distance.

❑ Get in the correct lane well in advance, do not suddenly change lanes.

❑ Remember, work zone traffic lanes often are narrow, without shoulders or emergency lanes.

❑ Be aware of temporary entrances to the roadway from the median.

❑ Expect delays - plan for them and be patient.

❑ Call 511 for the latest traffic, weather and highway conditions by route or mountain pass.

Visit www.TripCheck.com to check routes, snags, work zones or bad road conditions before you begin your trip. ▼

News Notes

Urban Composting Classes

On Saturdays June 19, July 17, August 21, and September 18 from 10 am-noon, at the Recycle Center on Water Street, Denny Morelli will instruct participants on how to divert food scraps & organic yard debris from the landfill. In time, this material can become valuable soil for your garden & yard. You will learn how to set up a compost system in an urban setting with recommendations for keeping critters out of your pile. This class is free thanks to the sponsorship of City of Ashland Conservation Commission. Please park on Water Street (not in Recycle Center parking area.) For more information, please contact Mary McClary at 541-552-2305.

Tree Climbing Workshop

Use rope-and-saddle tree climbing techniques to enter the leafy crown of a living tree! Instructor Tim Kovar will introduce tree climbing

(See *News Notes*, Back Page)

CITY OF ASHLAND

Free Ballet Classes in Lithia Park

Little Ballerina Classes will be held at the Butler Bandshell in Lithia Park. Aspiring ballerinas ages 5 - 9 can come dance on Sundays, from 11:00 a.m. until noon on July 11, 18, 25 and August 1. Registration will be on-site, starting at 10:45 a.m.

Free Ballet Performances in Lithia Park

The State Ballet of Oregon will hold ballet performances from 7:00 - 8:00 p.m. on July 11, 18, 25, and August 1.

Trauma Nurses Talk Tough

Straight talk about prevention and saving lives from Legacy Health

Summer 2010

Inside this issue

Driven to distraction: Multi-tasking can be deadly

The stats can't be ignored: Multi-tasking behind the wheel is the deadliest thing you can do. • A lot goes through your mind when you get behind the wheel of a car. But chances are you're not consciously thinking about navigating a 4,000-pound hunk of metal through a sea of other fast-moving hunks of metal and unpredictable pedestrians.

Texting while driving is a dangerous distraction.

"Driving a car is the most complex thing the majority of people will do in their lives, unless they fly an aircraft," says Dennis Doverspike, Ph.D., a psychologist at the University of Akron who studies driving behaviors. "In addition to concentrating on driving, you're also tuning the radio, chatting on your cell phone, munching on a bag of chips and applying eyeliner."

Car crashes are the leading cause of unintentional death among otherwise healthy young women, and the number caused by driver inattention has risen 21 percent in the past five years. Up to 56 percent of fatal crashes might have involved distraction, according to the National Highway and Traffic Safety Administration.

A whopping 85 percent of women reported using mobile devices while driving, according to a survey by Nationwide Insurance.

"One reason people put their lives on the line this way is that they believe they're better than average drivers and multi-taskers," says David Strayer, Ph.D., a professor of psychology at the University of Utah in Salt Lake City. "In other words, we think anyone else who multi-tasks is an idiot, but we're better drivers than the rest. Experts call this inattention blindness, which is when drivers are unaware of their own impaired driving. So as you're driving down the road gabbing with friends, in reality you're all over the road. You just aren't aware of it."

Two-thirds of people who use hands-free cell phones while driving think it's safer to chat that way, but studies have not shown significant differences; the driver is distracted either way. Despite all the dangers, only seven states and Washington, D.C., have banned handheld phones.

As dangerous as it is to talk on a cell phone while driving, a much more deadly habit is texting while driving. Thirty-nine percent of 18- to 30-year-olds and 15 percent of 31- to 44-year-olds admit to texting at the wheel.

see **Multi-tasking**, *page 3*

LEGACY HEALTH

Teaching correct use of booster seats crucial for safety

By Tammy Franks, Legacy Child Passenger Safety Coordinator

A booster seat helps to transition a growing child from a forward-facing car safety seat with a harness to the vehicle lap/shoulder belt. It is designed to elevate a child so that the lap/shoulder belt fits correctly. Studies show that children ages 4 to 8 who are using booster seats are 59 percent less likely to be injured in a crash than those restrained only by a vehicle safety belt.

The American Academy of Pediatrics recommends that a child should ride in a booster seat until the lap/shoulder belt fits properly. This happens when the child reaches approximately 4 feet 9 inches tall. A child in the 50th percentile usually reaches that height at approximately 11 years old.

A recent Swedish study, "Misuse of Booster Cushions — An Observation Study of Children's Performance During Buckling Up," by Anna-Lisa Osvalder, Ph.D., and Katarina Bohman, M.S., demonstrates the importance of proper use education for children using boosters. In their study, Osvalder and Bohman observed 130 Swedish children ages 4 to 12 buckling themselves into booster seats. Seventy-seven percent of the children buckled themselves into the boosters incorrectly. Children ages 4 to 5 showed a higher degree of misuse than children ages 6 to 11.

The most frequent misuse was that the lap/shoulder belt was placed outside of one or both of the guiding loops, which help facilitate proper belt placement. Belt slack was found in the lap portion of the belt; more belt slack was observed for children wearing winter coats. Additional misuse included twisted seat belts and shoulder belts placed behind the back or under the arm.

Based on the results of this study, it is important to educate both caregivers and children about proper use of booster seats since children of booster seat age will likely be buckling themselves into the vehicle lap/shoulder belt. Caregivers should check for the following:

Teaching how to correctly fit and use booster seats is important for the safety of child passengers.

- Make certain that the lap/shoulder belt is threaded through the appropriate belt path on the booster. If applicable, make certain that the belt is threaded under the armrests on the booster.
- The belt guides should be used according to manufacturer's instructions to ensure proper lap/shoulder belt placement.
- The lap/shoulder belt should be flat, not twisted, and should contact the child both on the shoulder while being high on the thighs and low on the hips. The belt should be pulled tight, with no slack.
- Children should remove bulky jackets prior to buckling up. The jacket can be used as a blanket if needed.
- Backpacks should be stored in the trunk, or buckled into an unused safety belt.

For additional questions, contact the Child Passenger Program at The Children's Hospital at Legacy Emanuel at 503-413-4005.

Multi-tasking: Slow down and concentrate when you drive

continued from page 1

In one recent study, texting on the road increased crash and near-crash risk by more than 20 times.

"We had drivers take their eyes off the road for almost five-second intervals," says Tom Dingus, director of the Virginia Tech Transportation Institute in Blacksburg, Va. "That's essentially driving the length of a football field at 55 miles per hour without looking."

Another theory: Driving a car becomes rote. We do it so often, we decide that we can do other things at the same time.

And it's not just handheld devices that are to blame for risky driving behavior.

"All the focus is on cell phones, but when we started digging into the stats, we found that eating was a huge part of distracted driving," says McKeel Hagerty, CEO of Hagerty Insurance.

Last year a Houston woman was killed when she crashed head-on into a freeway barrier. Police found a plate of food on the front seat of her car and suspect eating was the cause of the crash. Topping Hagerty's list of the most dangerous foods to eat in the car: coffee. A coffee spill distracts us because it's such an immediate problem.

Personal hygiene and driving also don't mix well. One in five women say they primp while driving, and more than 3 percent admit to being in a car crash because of it.

The first step in avoiding a collision is being aware of the risks associated with driving. Consider these tips for safer driving habits as well:

- If you fumble with your radio, plan ahead and preset stations or cue up your iPod.
- If you need to eat in the car, make a choice such as a banana or a protein bar, not a messy burger or taco. Make sure hot beverage mugs have a leak-proof seal.
- When you find yourself becoming agitated, take slow, deep breaths to calm yourself. "In stressful situations, our breathing is very rapid and shallow," says Elaine Masters, founder of Drivetime Yoga in Solana Beach, Calif.
- And finally, take a look at your life. If you're really so overscheduled that you have to eat, primp and live your entire life in your car, you may need to reassess your daily routine. "You have to prioritize," says Barbara Harsha, executive director of the Governors Highway Safety Association.

In sum, give yourself more time to get to where you're going. Slow down and concentrate on the driving itself rather than how many things you can get done while behind the wheel.

U.S. traffic fatalities fall to lowest point ever

Early estimates of Motor Vehicle Traffic Fatalities for 2009 indicate that an estimated 33,963 people died in motor vehicle traffic crashes. This represents a decline of about 8.9 percent compared to the 37,261 fatalities that occurred in 2008. If these projections are realized, fatalities will be at the lowest level since records were first kept in 1954. The fourth quarter of 2009 was the 15th consecutive quarter of declines in fatalities.

Traffic fatalities have been steadily declining since reaching a near-term peak in 2005. Final numbers for 2009 will be reported by the Fatality Analysis Reporting System and National Highway Traffic Safety Administration in July 2010.

Many thanks to the TNTT Network members and traffic safety partners who have helped make this happen.

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GACY
EALTH

TRAUMA NURSES TALK TOUGH
(about saving your life)

Trauma Nurses Talk Tough

Oregon's cell phone law has changed

Oregon's new cell phone law has been in effect since Jan. 1, 2010. The law specifically prohibits drivers from using a mobile communication device for talking or texting while driving unless the driver meets a specific exemption. In short, the law:

Covers drivers of all ages. Drivers age 18 and over can use a mobile communication device while driving only if they are using a hands-free accessory. Drivers under age 18 are prohibited from using all mobile communication devices, whether hands-free or not. Emergencies are an exception.

Offers some exemptions for devices used in the scope of employment. The law exempts some drivers who use a mobile communications device while drivng if the vehicle is necessary for the person's job. Some drivers who use radios (CB-style) while in the scope of employment are also exempt.

Treats cell phone use while driving as a primary offense. This means law enforcement can stop a driver solely for using a mobile communications device without a hands-free accessory. The minimum base fine for violating the law: $142.

Please remember that the research shows using a hands-free device is just as dangerous as using a hand-held device. So, just because it's legal doesn't mean it's safe. Please avoid driving distracted for any reason!