Appendix A

Public Input on Priorities

Technical Advisory Group Input (TAG)

The TAG for the U.S. 101 Hopland Main Street Corridor Engineered Feasibility Study included over 20 stakeholder and community representatives to guide and inform the public outreach and study process. All meetings were held at the Hopland Fire Station.

The following community members and stakeholders participated in one or more of the TAG meetings and community workshops:

- Hopland Band of Pomo Indians
- Mendocino County Sheriff (Tom Allan)
- Mendocino County Supervisor, 5th District
- Mendocino County Health Department
- Walk and Bike Mendocino
- Mendocino County Public Works and Transportation
- Mendocino County Air Quality Management District
- Hopland Fire Protection District
- California Highway Patrol
- Mendocino County Office of Education
- Real Goods
- Brutocao Family Vineyards
- Golden Vineyards
- MendoVito
- Invited Real Goods and Solar Living Institute
- Hopland Research and Extension Center
- Caltrans District 1
- Mendocino Council of Governments

The schedule and focus of the TAG Meetings included:

November 19, 2014 – Discussion of key issues to be addressed by the study, identification of stakeholder representatives to engage and the best ways to advertise events and encourage public participation.

January 7, 2015 – Planning the community workshop activities and schedule for February and discussion of ways the TAG could help inform the public.

March 10, 2015 – Following the February community workshop, review of proposed improvements developed by the project team based on the community input.

Notes from the three meetings are below.

November 19, 2014
2:00 p.m. – 3:30 p.m.
Hopland Volunteer Fire Station

Meeting Notes

Phil Dow, MCOG, Executive Director, gave a brief introduction.

Steve Weinberger, W-Trans, provided a presentation and overview of the project. Josh Meyer, Local Government Commission, provided information and requested suggestions for public outreach. He noted the project will focus on community input.

TAG comments/questions included:

- Is the bypass still an option? What's the status?
- What about the directionality of speeds specifically regarding the northbound approach entering Downtown Hopland?
- The bypass if it happens is an expensive long term project. The current project addresses what can be done sooner and would work regardless if a bypass ever occurs. The project existing conditions report is still in draft form.
- Need sidewalk improvements – pedestrians noted tripping during community events.
- Are school bus stops included in inventory of existing conditions? Existing locations for buses need to be shown on a map.
- School buses are flexible and can could change drop off and pick up location. The existing major bus stop is at the (now closed) elementary school – parents drop off there.
- It was noted that funding from this project/study are for planned alternatives, but not for construction of the improvements themselves.
- The bridges on 175 over the Russian River and over Dooley Creek are not safe, lack pedestrian facilities.
- The study should consider or map surrounding uses/facilities/generators to show where population and travel demand is in town.
- What are the needs for community, seasonal or special events?
- There are wine tasting events. Contact the Mendocino Planning Department for event schedule.
- The proposed MendoVito project was mentioned, but it was noted that it is located outside the scope of this study.
- At the north end of town pedestrians are crossing on unmarked locations – this is especially a concern for visiting tourists.

- At the east leg of US 101/SR 175 the crossing distance is very long and drivers are distracted because of traffic concerns (Turning conflicts).

- Keep in mind the school bus stops at Superette at 7:30 a.m. on the west side of US 101 and tops on the east side on the way back. Will need to follow-up with the school district re: the bus stop – it doesn't seem like a designated stop.

- There are safety/ rear-end collision issues at the solar living center driveway.

- Need to follow-up with Caltrans regarding speed survey data.

- There was discussion of potential engineering/traffic calming solutions: use design elements to "self-enforce" for speed limits.

- Is there a need for bike lanes on SR 175? Children use bikes/walk from Old Hopland to Downtown Hopland.

- Pedestrians on the north end of US 101 in the study area connect MTA to bike facilities. There are long-term plans for a trail connecting Hopland to Ukiah. This should be considered in concept designs. Farm workers & teenagers walk along the RR tracks where the trail will go.

- Possible dates and locations for the charrette/two-day community workshop were discussed.

- Another TAG meeting will be held in advance of the charrette. A total of 4 meetings are expected with the TAG.

- Discussion ensued about opportunities publicize community meetings. Outlets and ideas include:
  - Bluebird Café
  - Market
  - Post office
  - Local public radio station and Spanish radio station/show
  - Forward flier to the monthly winery group meeting
  - Send out the flier/fact sheet to schools
  - Ukiah Valley Trail Group and Walk & Bike Mendocino

- It is important for a simplified flier for posting around town. The current draft is more of a fact sheet.

The next TAG meeting is scheduled for 2 pm on Wednesday, January 7.

January 7, 2014
2 p.m. – 3 p.m.
Hopland Volunteer Fire Station

Meeting Notes

Steve Weinberger recapped the previous TAG meeting, and the study area project goals and objectives.

Steve and Josh Meyer reviewed the plans for upcoming multi-day workshop/design charrette, scheduled February 11 and 12 at the Brutocao schoolhouse.

Charrette Components include:

Day 1
- Outdoor walking audit
- Design workshop
- Warm-up activities, vision, participants, design tables, visually-driven, maps, identify problems, solutions.

Day 2
- Overview/summarize map mark-ups
- Open studio
- Closing presentation to confirm all issues have been addressed

Does everyone need to participate on both days?
- It would be ideal to have the public participate on both days.

Do all TAG members need to attend all portions of charrette?
- It would be ideal if they can attend table exercise at least.

Following the February charrette, there will be another community meeting to present the full draft plan. Need to set a date for the follow-up workshop to announce at the charrette.

The next TAG meeting will be 1-2 months after the charrette to review proposed designs based on the community input.

Will there be a prioritization of project components?
- Yes – some projects will be long-term vs. short-term, based on cost and potential funding sources.

How will the public be reached?
- Location is the "Schoolhouse Plaza," highly visible location
- Fliers being produced in English & Spanish
- Post fliers at post office, other public places
- Banner in front of Brutocao Schoolhouse Plaza
- Social Media – Facebook posting, sheriff's office to post on Facebook
- Email list from Sherriff (has list from community meetings)
- Yahoo groups 2,000 subscribers.
- Sherriff is making a PSA on radio.

- Get full media list from MCOG (KZYX - local radio and community calendar and Spanish)
- Walk & Bike Mendocino Facebook page.
- Incentivize youths? Engage youths to be involved – reach out through Ukiah USD. Get list through school.
- See about giving bus driver fliers to distribute on bus. Might be good timing. Find out bus drop-off time.
- Contact Director of Transportation to see if it is possible to give fliers to school students.
- Spanish outreach – translation fully available for all activities.

What are the types of alternatives and improvements that will be presented/considered? General Improvements discussion:

- Provide examples of alternatives to the community at the charrette.
- Include parking – on-street parking, "organized" parking?
- Businesses are always concerned about losing parking.
- Sufficient access for residences/parking driveways? Maintain access.
- Provide more technical guidance on constraints and opportunities on US 101/SR 175 to public.

Are there any plans with the bridges?

- Caltrans says no – no plans to improve bridges. This will be a constraint.

HAWK pedestrian signal warrants?

- Caltrans says one crosswalk meets the warrants for installing a HAWK signal

At charrette will present some alternatives – anything missed?

- Concerns with bulb-outs/ADA due to cross-slope issues

For walking audit, one walking group will check Old Hopland since it's significantly different.

At each table, need to provide a toolbox with description/pictures.

Make sure to use local photos

Know when to say a solution may not work.

Provide engineering constraints to public.

Make sure to remind them that this is a planning process.

Caltrans will be paving as soon as in the next year, but not through Downtown because of the cross-slope issues with existing crosswalks.

Josh will email out the next TAG meeting date in early April.

Need to update the flier – call it a workshop. People unfamiliar with the term charrette.

March 10, 2015
2 p.m. – 3 p.m.
Hopland Volunteer Fire Station

Steve Weinberger and Josh Meyer reviewed the community process and input at the February workshops. Steve presented the draft concepts and recommendations.

Challenges for roundabout implementation: funding, approval from Caltrans, challenges for trucks.

It was noted that three roundabouts are being built in Lake County.

Need to address parking and wayfinding. In Center Street area, parking is available behind hotel? Other off-street parking possibilities?

There is not much northbound bicycle activity on 101, north of SR 175. Eliminate the bicycle lanes north of SR 175 and provide wider sidewalks. An option could include wider sidewalks on 101 with a rail trail between SR 175 and 101 crossing at Hewlett Sturtevant Road.

W-Trans will revisit the accident history for 101/175 intersection to justify improvements.

County staff requested that it be noted that the County is not part of this study and improvements need to be in Caltrans ROW.

Need to do more work on criteria for prioritizing projects.

Would a cycle track work in old Hopland, with parking next to the travel lane?

Fill in sidewalk gaps in old Hopland with reconstruction in the downtown core.

Will the roundabout require additional space?

- May require a small area from the northeast corner.

What are potential objections to roundabouts?

- Doesn't meet warrants or is not a safety issue, so Caltrans unlikely to build
- If the community wants it, would need to come out of regional funds
- If there is an accident history, could be a candidate for HSIP funding

Main point: intersection at 101/175 is a large and detracts from pedestrian environment and community appeal. Roundabout could help with gateway, look, safety and walkability. Whatever solution – need to improve this area.

Hopland Main Street Corridor Study **February 11, 2015**
Public Workshop: Walk and Design Solutions **4:00 p.m. – 8:00 p.m.**
Sign-In Sheet **Brutocao Schoolhouse Plaza**

***Contact information removed in web version for privacy.**

Name	Affiliation	Phone #*	Email Address*
Andrew Blake	MendoVito		
Anna Beuselink	Campovida		
Chris Placeway	Resident & work in Hopland		
Christa Roderick	AMI and Resident		
Claire Arrowsmith	Solar Living Institute - Caretaker		
Claude Lewer	Mendovito		
Cory Brown	Hopland Resident		
Dan Hamburg	Board of Supervisors		
David Roderick	Property Owner		
Divora Stern	Mendocino Co. Permaculturist		
Don Moser	Solar Hydrogen		
Greta Kanne	Willits Main Street Merchants and Willits Resident		
Jan McGourty	Neighbor		
Jason Caudillo	Mendocino County Sheriff		
Jeff Yokim	Main Street Merchants		
Joan Norry	Hopland Resident		
Julie Golden	Golden Cellars - Downtown Hopland Property Owner		
Kate Frey	Landscape Design		
Kathy Richter	Resident		
Lauren Sinnott	County Point Arena		
Leila Doyle	MCOG/Hopland Resident		
Linda	Willists Resident		
Loretta Ellard	MCOG		
Mike William	Graziano Wines		
Patti Black	County Department of Transportation		
Phil Dow	MCOG		
Rayfred Duddles	Hopland Resident Hwy 101 & 175		
Sandra Rosas	Caltrans, District 1		
Sherri Haldorson	Resident & work in SBMC Hopland		
Steve Brutocao	Brutocao Cellars		
Tasha Ahlstrand	Caltrans, District 1		
Zack Reichenbach	Solar Living Institute - Caretaker		

Hopland Main Street Corridor Study **February 12, 2015**
Public Workshop: Presentation of Initial Concepts **6:00 p.m. – 7:30 p.m.**
Sign-In Sheet **Brutocao Schoolhouse Plaza**

***Contact information removed in web version for privacy.**

Name	Affiliation	Phone #*	Email Address*
Adam Randall	UDJ		
Anna Beuselink	Campovida		
Claire Arrowsmith	Solar Living Institute - Caretaker		
Connie Rosetti			
Cory Brown	Hopland Resident		
Gary Breen	Campovida		
Glenn McGourty	UC Cooperative Extension Center - UC Hopland Research &		
Glump Simmons	Landowner		
Jan McGourty	Neighbor		
Lee Halderson	Resident		
Leila Doyle	MCOG/Hopland Resident		
Linda Helland	Walk + Bike Mendocino		
Loretta Ellard	MCOG		
Nina Kaiser	Resident		
Patti Black	County Department of Transportation		
Phil Dow	MCOG		
Robert Rosetti			
Ryan Keiffer			
Sherri Haldorson	Resident & work in SBMC Hopland		
Tasha Ahlstrand	Caltrans, District 1		
Toril Hayden			
Zack Reichenbach	Solar Living Institute - Caretaker		

Public Input on Priorities

At the public workshop, attendees were presented with the list of project components and asked to identify their top three desired projects. The results are summarized in the table below.

Table 1
Hopland Main Street EFS – Workshop Voting Results

Proposed Improvements	# of Votes
1. Roundabout at US 101/SR 175	21
2. *Relocated US 101/Center Crosswalk with Curb Extensions and Regrade*	15
3. *Added Landscaping and Trees at Selected Locations*	9
4. *Colorized shoulders in Old Hopland*	8
5. *Entry Features/Median &Tree-Lined Entry*	7
6. *Sidewalk Reconstruction in High Pedestrian Area*	5
7. *New Southbound left-turn lane on US 101 into Real goods*	4
8. *Additional Speed Reduction Medians on US 101, North/South of Mtn. House*	4
9. *Bike Lanes on SR 175 between US 101 and SR 175 Roundabout*	4
10. *Paved Parking Aisles in Old Hopland*	3
11. *US 101/Center Crosswalk Re-grade with Flashing Lights and Signs*	2
12. *Buffered Bike Lanes on US 101 between North End and SR 175*	2
13. *Truck Parking on US 101 between SR 175 and Feliz Cr Bridge*	1
14. *Bicycle Parking*	1
15. *Enhanced Crosswalks North/South of SR 175*	1
16. *Standard Bike Lanes on US 101 between SR 175 and Real Goods*	1
17. *Benches*	1
18. *Reduced intersection size at US 101/SR 175*	0
19. *Pedestrian Scale Street Lighting*	0
20. *New Crosswalk on Mountain House Near US 101*	0

Hopland Main Street EFS - Workshop #2 (June 11, 2015)

*Contact information removed in web version for privacy.

NAME	AFFILIATION	TELEPHONE*	EMAIL*
Mike Milovina	Resident		
Jim Milovina	Resident		
Leila Doyle	Resident		
Andrew Blake	Nendovilo		
Lisa Davey-Bates	MCOG		
Patti Black	County DOT		
Len Brutolao	Resident		
D.A. Nelson	Hopland		
Howard Dashiell	Mendocino DOT		
Kathy Richter	Resident		
Melissa Smith	Resident		
Gary Smith	Resident		
Chris Keiffer	Resident		
Tod Kong	Resident		
Toril Hayden	Hoplander		
Iyesha Miller	Hopland Band of Pomo Indians		
John Schaeffer	Resident-Business		
Rayfred Duddles	Hopland Resident		
Donald L. Moser	Rent Goods		
Nina Kaiser	Hopland Resident		
Anna Bellsehnk	Hopland Resident		
Kate Frey	Hopland Resident		
Ken Richter	Hopland Resident		
Richard Henwood	Hopland Resident		
Lauren Sinnott			
Dan Hamburg			
Michele Savoy	Hopland Resident		
Sherri Haldorson	Hopland Resident		
Cindy Cunningham	Hopland Co-Housing		
Mike Killen	Hopland Co-Housing		
Susan Knopf	Citizen		
Marissa Leonard	Hopland Resident		
Chris Plawlavy	Hopland		
Phil Dow	MCOG		
Loretta Ellard	MCOG		
Rick Seaferer	Resident		
Gary J Rosetti	Resident		
Tom Killian			

Hopland Main Street EFS - Workshop #3 (September 10, 2015)

*Contact information removed in web version for privacy.

NAME*	EMAIL*
Harold Montgomery	
Mike Milovina	
Jim Milovina	
Patti Black	
Adam Randall	
Glenn and Jan McGourty	
Lisa Davey-Bates	
Toril Hayden	
Gary J Rosetti	
Chris Plawlavy	
Lauren Sinnott	
Dan Hamburg	
John Schaeffer	
Ava Keng	
Christa Valentin	
Roger Wheeler	
P. Goings	
Julianne R.	
David Rodenck	
Silvio Queirolo	
Robert Lee	
Charles Witherell	
Cesar Alvarado	
Pat Howard	
Gary and Melissa Smith	
Nina Kaiser	
John C. Oliver Jr.	
Sheri Rodriguez	

September 10, 2015 Community Meeting
Project Ranking Dot Exercise Results

Rank	Project Ranking	Agree	Disagree	Additional Notes
1	Radar feedback signs on US 101 at the north and south ends of Central Hopland	18	0	Two people think it should be ranked #3, One person thinks it should be ranked #2, One person thinks it should be ranked #1
2	Additional medians along US 101 through Central Hopland	11	0	One person thinks it should be ranked #3, One person thinks it should be ranked #5, One person thinks it should be ranked #8
3	Colorized shoulders in Old Hopland	14	2	Two people think it should be ranked #5, Two people think it should be ranked #1, One person thinks it should be ranked #2, One person thinks it should be ranked #11,
4	Sidewalk reconstruction through Central Hopland	13	0	One person thinks it should be ranked #7, Two people think it should be ranked #3, One person thinks it should be ranked #6
5	Bike lanes on US 101 in Central Hopland	11	2	One person thinks it should be ranked #2, One person thinks it should be ranked #8, One person thinks it should be ranked #7
6	Relocated US 101/Center Drive crosswalk with curb extensions and re-grading	13	0	One person thinks it should be ranked #4, One person thinks it should be ranked #6, One person thinks it should be ranked #10
7	Reduced tee-intersection at US 101/SR 175	6	9	One person thinks it should be ranked #4, One person thinks it should be ranked #5
8	Bike lanes on SR 175	12	2	One person thinks it should be ranked #4, One person thinks it should be ranked #6, One person thinks it should be ranked #11
9	Entry features on US 101 at the north and south ends of Central Hopland	11	0	One person thinks it should be ranked #4, One person thinks it should be ranked #9, Two people think it should be ranked #3
10	Roundabout at US 101/SR 175	26	4	Seven people think it should be ranked #1, Two people think it should be ranked #2, One person thinks it should be ranked #3, One person thinks it should be ranked #5
11	New southbound left-turn lane into Real Goods Solar Living Center on US 101	18	0	Eight people think it should be ranked #1, One person left comment saying, "danger safety issue!!"

Appendix B

Related Plans

Related Plans

General Plan

The *Mendocino County General Plan* adopted in August 2009 provides the framework for transportation planning within the county. The General Plan established goals that are concerned with the safe and efficient movement of people and goods in and around the county. Transportation-related principles, goals, and policies included in the Mendocino County General Plan that are relevant to the Hopland area engineered feasibility study include the following:

Principles

Principle 2-1d: Mendocino County is committed to the health and well-being of all its residents, and shall implement land use plans, policies and programs that promote health.

- The County will strive to promote community health for all neighborhoods, with particular attention to disadvantaged communities and those that have been identified as lacking in amenities.

Principle 2-3a: Encourage and empower local communities and organizations to engage in local planning and community improvement consistent with this General Plan's goals and policies.

Principle 2-3b: Improve the effectiveness of the planning and development process in achieving General Plan and community objectives.

- Promote open, inclusive public planning and development processes.
- Provide consistency and minimize conflicting mandates by integrating inter-agency planning and regulatory processes.
- Strive to make regulation and development decisions predictable, fair and cost effective.
- Continue to improve the coordination of County departments and local agencies and their functions to better facilitate the development process.
- Continue to explore opportunities to streamline the development process.

Goals

Goal DE-7 (Infrastructure): Basic infrastructure—roadways, water and sewer service, schools, libraries, internet access, etc.--sufficient to support existing and future development, in place when needed, and fully funded both initially and on an ongoing basis.

Goal DE-8 (Transportation): A balanced and coordinated transportation system that:

- Is an integrated and attractive part of each community.
- Is functional, safe and pleasant to use, and supports emergency services.
- Provides a choice of modes accessing and connecting places frequented in daily life.
- Promotes compact development and infrastructure efficiencies.
- Is consistent with principles of sustainability and conservation of resources.

- Is not solely dependent on the continuation of fossil fuel resources.

- Can be maintained, used, and justified if available energy sources change during the duration of the General Plan.

Goal DE-9 (Road Systems): A countywide road system that provides safe, efficient and attractive access, coordinated with interstate, state, local and area-wide systems.

Goal DE-10 (Pedestrian & Bicycle): Functional, safe and attractive pedestrian and bicycle systems coordinated with regional and local transportation plans and other transportation modes.

Policies

Transportation Policies

Policy DE-126: Provide for multiple transportation modes and functions within transportation corridors and rights-of-way constructed by project developers or using appropriate grants funding.

Policy DE-127: The County's transportation policies and funding priorities shall emphasize use of multiple transportation modes with the acknowledgment that general transportation operation and maintenance funding is barely adequate for existing roadway safety maintenance. Emphasis should be placed on securing additional grant funds to support multimodal improvements in the right-of-way.

Policy DE-128: Ensure that transportation infrastructure accommodates the safety and mobility of motorists, pedestrians, bicyclists, and persons in wheelchairs.

- Action Item DE-128.1: Establish public works standards to implement policy DE-128.

- Action Item DE-128.2: Develop and implement standards to ensure that roadways and other transportation infrastructure are restored to a safe condition after repair work, utility installation, or other activity.

Policy DE-130: The County will coordinate with state and local agencies to ensure that transportation plans, standards and improvements are consistent and compatible across jurisdictional lines.

- Action Item DE-130.1: The County will work with Caltrans and MCOG to project future growth on roadways in the county, and will work cooperatively to plan for future roadway needs and mitigation for impacts resulting from growth in the unincorporated area.

Policy DE-131: Development impact fees, assessments, and other secured funding sources may be required to fund transportation improvements to provide an adequate transportation system or offset transportation impacts.

- Action Item DE-131.1: Maintain short and long-term capital improvements programs for transportation facilities, consistent with adopted plans.

Policy DE-132: Ensure priority County transportation and multimodal improvements are reflected in updated Regional Transportation Plans and other transportation planning documents. Encourage new project development proposals to include multimodal improvements, and the funding mechanisms needed to maintain those improvements.

Policy DE-133: Consider community objectives in prioritizing transportation improvements funding.

Policy DE-135: Evaluate and work to reduce the air quality impacts of all proposed transportation projects.

Policy DE-136: The County will ensure that development projects which propose direct access to a state highway have legal entitlements for such access.

- Action Item DE-136.1: The County will refer to Caltrans all development applications which propose direct access to a state highway. Affected roadways that need to meet the most current Caltrans requirements include all or portions of the following:
    - State Route 1
    - State Route 20
    - Hwy 101
    - State Route 128
    - State Route 253
    - State Route 162

Policy DE-138: The County supports the use of traffic calming techniques, where appropriate, to improve safety for motorists, bicyclists, pedestrians, and others. Special attention will be given to safety on roadways which provide access for children to school.

Policy DE-141: The County encourages development using existing roads with available capacity prior to locating development in areas that require new transportation facilities.

Policy DE-142: Encourage mixed-use, infill and increased density development along multi-modal transportation corridors, focused on community areas.

Policy DE-143: Coordinate land use density and intensity with the functional classifications and capacities of the road system.

Policy DE-144: Prior to allocating funds for road widening projects, consider alternatives, such as enhanced system efficiency and alternative transportation.

Policy DE-145: Maximize the compatibility of major highway and road realignments, extensions and capacity-increasing projects with community objectives, and minimize impacts on commercial areas, neighborhoods, and resources.

Policy DE-146: The County supports the construction of the Willits and Hopland bypasses consistent with the standards outlined in the community policies section of the General Plan.

Policy DE-149: Major development applications shall include traffic studies to evaluate and mitigate cumulative effects on network level of service and safety.

Policy DE-150: The County supports community programs to reduce traffic volumes and single-occupant vehicles during peak hours.

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Pedestrian and Bicycle Systems Policies

Policy DE-152: The County shall ensure that bicycle facilities are safe, attractive, and useful for both recreational and commuting cyclists. This shall include:

- Requiring that bicycle facilities be designed in accordance with the State Bikeway Design Criteria.
- Periodically reviewing, and updating if needed, street standards to accommodate bicycle lanes where indicated on the Bikeway Master Plan.
- Designing bridges, over passes, under passes, etc. to be compatible with bicycle travel. Considering bicycle safety when implementing improvements for automobile traffic operations.
- Provide an information/education program to encourage use of the system and to promote safe riding.

Policy DE-153: Provide pedestrian and bicycle ways along public roadway systems consistent with community area goals and policies and where sufficient right of way is available.

- Action Item DE-153.1: Prepare a plan identifying future pedestrian and bicycle routes and their implementation, including the use of a portion of traffic impact fees to fund pedestrian and bicycle systems.

Policy DE-154: Include bicycle and pedestrian facilities, where feasible, when County roads, bridges, buildings, and other facilities are renovated or replaced.

Policy DE-155: Connect pedestrian, bicycle and trail routes to form local and regional networks. Link pedestrian, bicycle and trail routes with other transportation modes to maximize local and regional non-motorized transportation.

- Action Item DE-155.1: Work with trails groups to promote and construct more trails for walking, bicycling, and pedestrian use.

Policy DE-156: Concentrate pedestrian improvements along school and transit routes, in areas of established pedestrian activity, and adjacent to sites serving senior citizen and/or persons with disabilities.

Policy DE-157: When development occurs, require installation of pedestrian and bicycle systems or, if infeasible, the payment of in-lieu fees to fund improvements to bicycle and pedestrian facilities.

Policy DE-158: Promote bicycle use and safety through development standards, education, promotional activities, incentives, and safe bicycle parking, facility design and maintenance.

Policy DE-159: Preserve abandoned Railroad right-of-way for trail use and investigate the feasibility of locating bicycle paths on unused portions of existing rights-of-way.

Transit Systems Policies

Policy DE-160: Increase the attractiveness and use of energy-efficient forms of transportation such as public transit, walking, and bicycling through a variety of means, including promoting transit-oriented development in existing cities and urbanized areas and the use of transit by visitors to the county.

- Action Item DE-160.1: Adopt development standards that facilitate public transit and alternative transportation modes in multi-modal transportation corridors.

- Action Item DE-160.2: Adopt zoning and development standards allowing increased land use densities and intensities proximate (generally within 0.5 mile) to multi-modal transportation corridors.

Policy DE-161: The County will demonstrate leadership in the implementation of programs encouraging the use of alternative modes of transportation by its employees, as well as the use of alternative fuels. Example programs may include:

- Preferential carpool parking and other ridesharing incentives;
- Flexible working hours or telecommuting where consistent with job duties and customer service needs;
- A purchasing program that favors hybrid, electric, or other energy-efficient vehicles;
- Properly matching trips to the most efficient vehicle to minimize fuel expenditures;
- Encouraging pedestrian/bicycle trips between County facilities where distances and physical ability permit;
- Assisting in the development of demonstration projects for alternative fuel technologies such as ethanol, hydrogen, and electricity;
- Secure bicycle parking; and
- Transit incentives

Policy DE-162: The use of public transit and multi-modal transportation systems in community areas should be emphasized.

- Action Item DE-162.1: Work with transit providers to coordinate transit routes, frequency of service and facilities throughout the county.

Rail-with-Trail Corridor Plan

The Rail-with-Trail Corridor Plan (Plan), adopted in May 2012, provides a plan to implement multi-use trails on the portion of Northwestern Pacific Railroad in Mendocino County and northern Sonoma County, which is no longer used by railroad companies. The Plan provides an existing conditions report and identifies priority segments to be developed along the 103-mile long corridor. The portion of the corridor in Hopland were identified as segments to be included in Phase II, which would be the five to ten year part of the project. The goals and vision for the corridor are:

GOAL 1: Improve Non-Motorized Mobility and Accessibility

Expand and enhance non-motorized mobility for persons living in, working in, and visiting Mendocino County, including access to and connections with other transportation modes.

GOAL 2: Preserve the Transportation System

Design a RWT that will efficiently utilize the NWP corridor, support the region's current blueprint planning efforts which calls for improved options for bicycling, walking, and equestrians, and allow for future rail service along the NWP line.

GOAL 3: Enhance Public Safety and Security

Design the RWT segments to respond to safety and security needs as well as neighborhood privacy concerns.

GOAL 4: Reflect Community Values

Promote community values and identity, including use by multiple user groups, such as bicyclists, pedestrians, and equestrians (where feasible) and incorporate public involvement in decision making processes.

GOAL 5: Enhance the Environment

Assist in greenhouse gas reduction by encouraging and facilitating non-motorized vehicle trips.

GOAL 6: Allow for Regional Connections

Provide non-motorized connections to adjacent streets and land uses including transit, shopping, institutional, office, and residential areas.

GOAL 7: Implementation Funding

Develop a funding, financing, and implementation strategy identifying eligible grant sources and/or potential development requirements supporting construction.

Mendocino County Regional Transportation Plan (2010)

The Mendocino County Regional Transportation Plan, adopted in 2011, was created to provide a 20 year plan for future transportation needs in the area and involves all levels, from the federal government to local and tribal governments, to individual stakeholders. Some goals, objectives, and policies of the Regional Transportation Plan include:

<u>Complete Streets</u>

Goal: To improve our public spaces so the street, road, and transportation system meets the needs of all surface transportation modes, including vehicular, bicycle, pedestrian, and transit.

- Objective: Incorporate bicyle, pedestrian, and transit improvements, unless the roadway is exempt by law, or the project receives a specific waiver authorized through a public, high-level process.
    - Policy: Coordinate funding programs to provide multiple components of an infrastructure project when appropriate.
    - Policy: Seek funding sources for multiple modes of transportation.
    - Policy: Facilitate coordination between local transportation agencies and Mendocino Transit Authority.
    - Policy: Consider waivers in cases where environmental issues constrain improvement options, transit service is not planned or currently provided, or where the benefit/cost ratio of providing bike/pedestrian improvements is low (as would be expected in isolated rural areas).

- Objective: Provide new bicycle, pedestrian and transit facilities on existing streets and roads where none exist.

    - Policy: Seek funding to fill gaps in bicycle and pedestrian facilities adjacent to roadways and provide bus stop improvements along fixed transit routes.

State Highway System

Goal: Provide safe, efficient transportation for regional and interregional traffic while maintaining quality of life for residents of the county.

- Objective: Provide timely improvements to the Principle Arterial (major highway) system consistent with statewide needs and regional priorities.

    - Policy: Identify improvements to the major corridors consistent with route concepts.

    - Policy: Seek finding for priority improvements identified on major corridors and interregional routes, including the consideration of RIP programming and pursuit of other State and Federal funding sources.

    - Policy: Identify, prioritize, and seek funding for access improvements (interchanges and intersections) to the Principal Arterial System.

    - Policy: Consider funding participation in staged widening of two-lane segments of US 101 south of Ukiah.

- Objective: Provide a system of Minor Arterial Highways consistent with statewide needs and local priorities.

    - Policy: Encourage State funding for maintenance of Minor Arterial Highway segments within the County.

    - Policy: Coordinate with Caltrans to identify and program needed operational and safety improvements.

    - Policy: Consider local funding partnership to correct safety concerns as appropriate.

- Objective: Provide safe traveling conditions on all State Highways within Mendocino County.

    - Policy: Prioritize projects that correct safety issues (particularly in locations with high accident rates) for support and funding consideration.

- Objective: Provide for efficient, free-flowing travel on all State Highways in Mendocino County.

    - Policy: Maintain a minimum Level of Service C on rural segments of the Principal Arterial System and a minimum Level of Service of D in "urbanized" areas as measured by the current Highway Capacity Manual.

    - Policy: Maintain a minimum Level of Service D on the "main line" at all interchanges and at-grade crossings on the State Highway System.

    - Policy: Consider programming RIP funding for projects that maintain or improve Level of Service to standards identified herein.

- Objective: Balance the needs for transportation improvements with quality of life for residents of and visitors to the region.
    - Policy: Consider context sensitive solutions when planning and designing highway improvements, particularly in communities where a State highway serves as "Main Street."
    - Policy: Consider "complete streets" strategies when planning major corridor improvements that include the needs of bicyclists, pedestrians, and transit users.
    - Policy: Pursue multiple funding sources (STIP, TE, SR2S, BTA, etc.) on corridor projects to fund multiple modal aspects of the project.

Local Streets and Roads

Goal: Provide a safe and efficient transportation network, connecting local community roads and major transportation corridors and meeting the transportation needs of the communities served by these facilities.

- Objective: Identify and prioritize capital improvements to the regional road system.
    - Policy: Conduct planning activities, such as development of CIPs, to identify critical, high priority improvements.
    - Policy: Seek funding for needed improvements, including consideration of RIP funding and other state and federal grant sources.
    - Policy: Prioritize improvements to principal local roadways, particularly those providing primary access to communities, those that connect to the State Highway system, or those that relieve the impact on the State Highway system.
- Objective: Balance the need for safety and operational improvements with the need for maintenance of the existing system.
    - Policy: Maintain a Pavement Management Program to analyze and determine the best use for funds available for pavement maintenance and rehabilitation.
    - Policy: Assist local agencies in identifying, prioritizing, and funding safety improvements on local streets and roads systems.
    - Policy: Seek reliable funding sources for ongoing maintenance and rehabilitation efforts in order to protect investment in existing system.
- Objective: Provide for alternative forms of transportation on local street and road networks.
    - Policy: Consider "complete streets" strategies when planning and implementing local street and road improvements, including the addition/improvement of bicycle and pedestrian facilities and transit stops.

Non-Motorized Transportation

Goal: Provide a safe and useable network of bicycle and pedestrian facilities throughout the region as a means to lessen dependence on vehicular travel and improve the health of Mendocino County's residents.

- Objective: Maximize funding opportunities for local agencies to develop and construct bicycle and pedestrian facilities,
    - Policy: Update Regional Bikeway Plan on a timely basis to ensure local agency eligibility for Bicycle Transportation Account funds and other grant programs.
    - Policy: Provide support to local agencies in pursuing grant funding such as Safe Routes to School and the Bicycle Transportation Account.
    - Policy: Continue to reserve and allocate 2 percent of Local Transportation Funds for bicycle and pedestrian projects.
    - Policy: Seek funding for needed improvements, and consider RIP funding and other state and federal grant sources.
- Objective: Provide a non-motorized transportation network that office a feasible alternative to vehicular travel.
    - Policy: Prioritize improvements providing access to schools, employment, and other critical services.
    - Policy: Prioritize projects that link to an existing facility or provide connectivity,
    - Policy: Fund planning activities in MCOG's Work Program to identify priority improvements for commute purposes, such as safe routes to schools plans.
    - Policy: Consider the addition/improvement of bicycle and pedestrian facilities when planning and implementing Local Street and road improvements.
- Objective: Encourage healthier lifestyles through increased walking and biking.
    - Policy: Coordinate with health organizations to promote alternative forms of transportation.
    - Policy: Support education programs to promote increased walking and biking.
    - Policy: Encourage development adjacent to existing pedestrian and bicycle systems.
- Objective: Improve property value and strengthen local economies through more accessible commercial and residential areas.
    - Encourage the addition of pedestrian and bicycle improvements in local business areas and existing residential areas.

Mendocino County Regional Bikeway Plan (2012)

The final Mendocino County Regional Bikeway Plan was adopted in 2012. The purpose of the Bikeway Plan is to compile all proposed bikeway improvements in Mendocino County into a single report, which helps meet the requirements of the California Bicycle Transportation Act. The Bikeway Plan also sets policies and guidelines for both the incorporated towns and unincorporated areas for the planned bicycle facilities in the County.

Vision Mendocino 2030 Blueprint Plan

Vision Mendocino 2030 documents how Mendocino County will accommodate expected growth and how they will do so in the most sustainable way. The Plan discusses County growth impacts to resource lands, city and community development, water districts, local food sources, and multi-modal transportation. The Blueprint Plan is unique because both cities and unincorporated communities were considered when shaping the goals and policies.

The guiding principles of Vision Mendocino 2030 are:

- Economic Vitality
    - *Support resource-based industries based on the wealth of Mendocino's natural resources, such as agricultural lands, forests, and coastal lands, to create sustainable economic development. Resource-based industries that can be nourished in Mendocino include environmental clean-up, restoration, sustainable harvesting, value-added products, and eco-tourism. Ensure such industries occur in proximity to existing transportation corridors to prevent sprawl. Support efforts, such as expanding secondary education opportunities, to train County residents to occupy locally available jobs.*
- Natural Resource Conservation
    - *Preserve natural resources, including water, timber land, agricultural land, habitats, and open space. Limit new development to existing urbanized areas and the areas that marginally impact resources. Encourage all new development to incorporate water conservation practices and low impact development. Ensure adequate buffers between urban uses and natural habitats or agricultural land.*
- Focused Development
    - *Support infill development and direct new development primarily towards existing communities to utilize existing infrastructure systems. Encourage a mix of uses and development intensities that support pedestrian, bicycle, transit, and other non-motorized transportation modes.*
- Transportation Choices
    - *Promote reliable, efficient transportation alternatives to improve air quality, reduce greenhouse gas emissions, promote public health, and enhance quality of life. Encourage walking and biking as transportation options.*
- Adequate Housing Supply
    - *Expand housing options for people of all ages and incomes. Provide housing options proximate to public transit, jobs, food sources, services, parks, and other amenities.*
- Community Character and Design
    - *Enhance the unique characteristics of existing communities and quality of life. Foster a sense of place with a vibrant walking and biking environment. Ensure future development fits into Mendocino's rural, small town feeling through building design and placement.*
- Local Food System
    - *Provide local food sources in close proximity to housing and promote food processing industries to benefit the local economy. Support streamlined connections between local producers and local food consumers through farmers markets, delivery services, grocery stores, and local restaurants. Promote community gardens to provide access to affordable, fresh food sources, as well as create social gathering places.*

Appendix C

Traffic Counts

ALL TRAFFIC DATA

Mendocino County
All Vehicles on Unshifted
Nothing on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 14-7595-001 US 101-SR 175.ppd
Date : 9/25/2014

Unshifted Count = All Vehicles

	US 101 Southbound					SR 175 Westbound					US 101 Northbound					Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	16	106	0	0	122	9	0	23	0	32	0	102	8	0	110	0	0	0	0	0	264	0
16:15	16	118	0	0	134	7	0	23	0	30	0	108	1	0	109	0	0	0	0	0	273	0
16:30	23	99	0	0	122	8	0	42	0	50	0	109	13	0	122	0	0	0	0	0	294	0
16:45	21	95	0	0	116	8	0	25	0	33	0	107	6	0	113	0	0	0	0	0	262	0
Total	76	418	0	0	494	32	0	113	0	145	0	426	28	0	454	0	0	0	0	0	1093	0
17:00	14	92	0	0	106	8	0	23	0	31	0	108	6	0	114	0	0	0	0	0	251	0
17:15	21	145	0	0	166	6	0	28	0	34	0	110	7	0	117	0	0	0	0	0	317	0
17:30	14	118	0	0	132	10	0	20	0	30	0	107	12	0	119	0	0	0	0	0	281	0
17:45	18	145	0	0	163	6	0	20	0	26	0	92	6	0	98	0	0	0	0	0	287	0
Total	67	500	0	0	567	30	0	91	0	121	0	417	31	0	448	0	0	0	0	0	1136	0
Grand Total	143	918	0	0	1061	62	0	204	0	266	0	843	59	0	902	0	0	0	0	0	2229	0
Apprch %	13.5%	86.5%	0.0%	0.0%		23.3%	0.0%	76.7%	0.0%		0.0%	93.5%	6.5%	0.0%		0.0%	0.0%	0.0%	0.0%			
Total %	6.4%	41.2%	0.0%	0.0%	47.6%	2.8%	0.0%	9.2%	0.0%	11.9%	0.0%	37.8%	2.6%	0.0%	40.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

ALL TRAFFIC DATA

Mendocino County
All Vehicles on Unshifted
Nothing on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 14-7595-001 US 101-SR 175.ppd
Date : 9/25/2014

Unshifted Count = All Vehicles

PM PEAK HOUR	US 101 Southbound					SR 175 Westbound					US 101 Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	14	92	0	0	106	8	0	23	0	31	0	108	6	0	114	0	0	0	0	0	251
17:15	21	145	0	0	166	6	0	28	0	34	0	110	7	0	117	0	0	0	0	0	317
17:30	14	118	0	0	132	10	0	20	0	30	0	107	12	0	119	0	0	0	0	0	281
17:45	18	145	0	0	163	6	0	20	0	26	0	92	6	0	98	0	0	0	0	0	287
Total Volume	67	500	0	0	567	30	0	91	0	121	0	417	31	0	448	0	0	0	0	0	1136
% App Total	11.8%	88.2%	0.0%	0.0%		24.8%	0.0%	75.2%	0.0%		0.0%	93.1%	6.9%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.798	.862	.000	.000	.854	.750	.000	.813	.000	.890	.000	.948	.646	.000	.941	.000	.000	.000	.000	.000	.896

ALL TRAFFIC DATA

Mendocino County
All Vehicles on Unshifted
Nothing on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 14-7595-002 Old River Road-SR 175.ppd
Date : 9/25/2014

Unshifted Count = All Vehicles

	Southbound					SR 175 Westbound					Old River Road Northbound					SR 175 Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	0	0	0	0	0	15	23	0	0	38	1	0	13	0	14	0	25	0	0	25	77	0
16:15	0	0	0	0	0	7	30	0	0	37	0	0	14	0	14	0	10	2	0	12	63	0
16:30	0	0	0	0	0	11	48	0	0	59	1	0	14	0	15	0	26	2	0	28	102	0
16:45	0	0	0	0	0	13	26	0	0	39	0	0	16	0	16	0	24	3	0	27	82	0
Total	0	0	0	0	0	46	127	0	0	173	2	0	57	0	59	0	85	7	0	92	324	0
17:00	0	0	0	0	0	9	30	0	0	39	1	0	15	0	16	0	17	1	0	18	73	0
17:15	0	0	0	0	0	9	24	0	0	33	1	0	8	0	9	0	32	1	0	33	75	0
17:30	0	0	0	0	0	8	30	0	0	38	2	0	20	0	22	0	18	2	0	20	80	0
17:45	0	0	0	0	0	17	17	0	0	34	1	0	11	0	12	0	22	1	0	23	69	0
Total	0	0	0	0	0	43	101	0	0	144	5	0	54	0	59	0	89	5	0	94	297	0
Grand Total	0	0	0	0	0	89	228	0	0	317	7	0	111	0	118	0	174	12	0	186	621	0
Apprch %	0.0%	0.0%	0.0%	0.0%		28.1%	71.9%	0.0%	0.0%		5.9%	0.0%	94.1%	0.0%		0.0%	93.5%	6.5%	0.0%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	36.7%	0.0%	0.0%	51.0%	1.1%	0.0%	17.9%	0.0%	19.0%	0.0%	28.0%	1.9%	0.0%	30.0%	100.0%	

ALL TRAFFIC DATA

Mendocino County
(916) 771-8700
orders@atdtraffic.com

All Vehicles on Unshifted
Nothing on Bank 1
Nothing on Bank 2

File Name : 14-7595-002 Old River Road-SR 175.ppd
Date : 9/25/2014

Unshifted Count = All Vehicles

PM PEAK HOUR	Southbound					SR 175 Westbound					Old River Road Northbound					SR 175 Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	11	48	0	0	59	1	0	14	0	15	0	26	2	0	28	102
16:45	0	0	0	0	0	13	26	0	0	39	0	0	16	0	16	0	24	3	0	27	82
17:00	0	0	0	0	0	9	30	0	0	39	1	0	15	0	16	0	17	1	0	18	73
17:15	0	0	0	0	0	9	24	0	0	33	1	0	8	0	9	0	32	1	0	33	75
Total Volume	0	0	0	0	0	42	128	0	0	170	3	0	53	0	56	0	99	7	0	106	332
% App Total	0.0%	0.0%	0.0%	0.0%		24.7%	75.3%	0.0%	0.0%		5.4%	0.0%	94.6%	0.0%		0.0%	93.4%	6.6%	0.0%		
PHF	.000	.000	.000	.000	.000	.808	.667	.000	.000	.720	.750	.000	.828	.000	.875	.000	.773	.583	.000	.803	.814

ALL TRAFFIC DATA

Mendocino County
All Vehicles on Unshifted
Nothing on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 14-7595-003 US 101-Mountain House Road.ppd
Date : 9/25/2014

Unshifted Count = All Vehicles

	US 101 Southbound					Westbound					US 101 Northbound					Mountain House Road Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
16:00	0	100	13	0	113	0	0	0	0	0	2	103	0	0	105	11	0	2	0	13	231	0
16:15	0	107	17	0	124	0	0	0	0	0	3	104	0	0	107	12	0	2	0	14	245	0
16:30	0	94	14	0	108	0	0	0	0	0	6	107	0	0	113	18	0	3	0	21	242	0
16:45	0	96	16	0	112	0	0	0	0	0	1	112	0	0	113	8	0	4	0	12	237	0
Total	0	397	60	0	457	0	0	0	0	0	12	426	0	0	438	49	0	11	0	60	955	0
17:00	0	88	12	0	100	0	0	0	0	0	3	105	0	0	108	9	0	3	0	12	220	0
17:15	0	136	15	0	151	0	0	0	0	0	3	111	0	0	114	13	0	3	0	16	281	0
17:30	0	116	12	0	128	0	0	0	0	0	4	112	0	0	116	13	0	3	0	16	260	0
17:45	0	129	23	0	152	0	0	0	0	0	3	89	0	0	92	8	0	0	0	8	252	0
Total	0	469	62	0	531	0	0	0	0	0	13	417	0	0	430	43	0	9	0	52	1013	0
Grand Total	0	866	122	0	988	0	0	0	0	0	25	843	0	0	868	92	0	20	0	112	1968	0
Apprch %	0.0%	87.7%	12.3%	0.0%		0.0%	0.0%	0.0%	0.0%		2.9%	97.1%	0.0%	0.0%		82.1%	0.0%	17.9%	0.0%			
Total %	0.0%	44.0%	6.2%	0.0%	50.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	42.8%	0.0%	0.0%	44.1%	4.7%	0.0%	1.0%	0.0%	5.7%	100.0%	

ALL TRAFFIC DATA

Mendocino County
(916) 771-8700
orders@atdtraffic.com

All Vehicles on Unshifted
Nothing on Bank 1
Nothing on Bank 2

File Name : 14-7595-003 US 101-Mountain House Road.ppd
Date : 9/25/2014

Unshifted Count = All Vehicles

PM PEAK HOUR	US 101 Southbound					Westbound					US 101 Northbound					Mountain House Road Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	88	12	0	100	0	0	0	0	0	3	105	0	0	108	9	0	3	0	12	220
17:15	0	136	15	0	151	0	0	0	0	0	3	111	0	0	114	13	0	3	0	16	281
17:30	0	116	12	0	128	0	0	0	0	0	4	112	0	0	116	13	0	3	0	16	260
17:45	0	129	23	0	152	0	0	0	0	0	3	89	0	0	92	8	0	0	0	8	252
Total Volume	0	469	62	0	531	0	0	0	0	0	13	417	0	0	430	43	0	9	0	52	1013
% App Total	0.0%	88.3%	11.7%	0.0%		0.0%	0.0%	0.0%	0.0%		3.0%	97.0%	0.0%	0.0%		82.7%	0.0%	17.3%	0.0%		
PHF	.000	.862	.674	.000	.873	.000	.000	.000	.000	.000	.813	.931	.000	.000	.927	.827	.000	.750	.000	.813	.901

15-Minute Intersection Counts 4:00pm to 6:00pm

Int 1: Feliz Creek Rd & Mtn House Road

9/10/14 from 4:25 pm to 4:40 pm

Northbound			Southbound			Eastbound			Westbound		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1	8	3	5	10	5	2	1	0	1	1	1
4	32	12	20	40	20	8	4	0	4	4	4

Int 2: East Side 201 Rd/Old River Rd & Lakeport-Hopland 175 Road

9/10/14 from 4:55 pm to 5:10 pm

Northbound			Southbound			Eastbound			Westbound		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	3	29	1	24	0	1	0	0	20	0	1
0	12	116	4	96	0	4	0	0	80	0	4

Int 3: Hewlett Strurtevant Rd & 101

9/10/14 from 4:00 pm to 4:15 pm

Northbound			Southbound			Eastbound			Westbound		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	120	0	0	130	0	0	0	2	0	0	0
0	480	0	0	520	0	0	0	8	0	0	0

Volumes for: Thursday, September 25, 2014 City: Mendocino County Project #: 14-7596-001

Location: US 101 between Mountain House Road and SR 175

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	25	121			15	134				
12:15	19	115			11	148				
12:30	18	130			13	124				
12:45	15	139	77	505	9	133	48	539	125	1044
1:00	7	125			2	145				
1:15	18	143			13	125				
1:30	18	132			6	136				
1:45	9	108	52	508	8	141	29	547	81	1055
2:00	10	141			14	127				
2:15	20	134			4	138				
2:30	6	117			13	120				
2:45	7	168	43	560	15	150	46	535	89	1095
3:00	9	149			17	141				
3:15	19	127			14	118				
3:30	9	116			9	137				
3:45	27	126	64	518	23	144	63	540	127	1058
4:00	11	114			21	114				
4:15	13	116			33	122				
4:30	21	122			25	112				
4:45	16	122	61	474	29	101	108	449	169	923
5:00	24	112			32	108				
5:15	28	125			64	145				
5:30	30	120			72	131				
5:45	43	100	125	457	54	148	222	532	347	989
6:00	33	113			55	102				
6:15	53	93			79	112				
6:30	66	82			83	82				
6:45	82	82	234	370	84	71	301	367	535	737
7:00	80	90			71	87				
7:15	97	77			71	97				
7:30	107	80			66	73				
7:45	95	73	379	320	85	68	293	325	672	645
8:00	107	72			84	66				
8:15	93	53			88	56				
8:30	105	62			115	32				
8:45	100	54	405	241	85	52	372	206	777	447
9:00	91	37			112	42				
9:15	73	54			110	45				
9:30	143	35			122	44	0			
9:45	105	33	412	159	109	38	453	169	865	328
10:00	105	48			127	18				
10:15	121	49			126	25				
10:30	109	31			112	25				
10:45	122	23	457	151	116	22	481	90	938	241
11:00	113	41			123	19				
11:15	119	26			117	8				
11:30	111	18			112	18				
11:45	99	18	442	103	157	16	509	61	951	164
Total	2751	4366	2751	4366	2925	4360	2925	4360	5676	8726
Combined Total	7117		7117		7285		7285		14402	
AM Peak	9:30 AM				11:45 AM					
Vol.	474				563					
P.H.F.	0.829				0.896					
PM Peak		2:15 PM				12:15 PM				
Vol.		568				550				
P.H.F.		0.874				0.929				
Percentage	38.7%	61.3%			40.2%	59.8%				

Volumes for: Friday, September 26, 2014 City: Mendocino County Project #: 14-7596-001
Location: US 101 between Mountain House Road and SR 175

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	22	146			11	163				
12:15	14	162			9	129				
12:30	12	159			8	180				
12:45	24	164	72	631	11	134	39	606	111	1237
1:00	19	135			19	153				
1:15	25	163			7	162				
1:30	16	167			14	145				
1:45	17	149	77	614	8	154	48	614	125	1228
2:00	11	149			10	146				
2:15	10	174			12	178				
2:30	11	154			9	131				
2:45	12	168	44	645	16	156	47	611	91	1256
3:00	16	148			8	154				
3:15	15	195			19	141				
3:30	14	165			23	191				
3:45	8	159	53	667	18	165	68	651	121	1318
4:00	17	163			20	181				
4:15	19	167			27	190				
4:30	26	174			23	140				
4:45	21	179	83	683	37	157	107	668	190	1351
5:00	31	163			42	177				
5:15	22	155			63	170				
5:30	28	149			73	181				
5:45	42	143	123	610	57	153	235	681	358	1291
6:00	63	135			58	148				
6:15	75	141			80	123				
6:30	58	159			74	123				
6:45	87	162	283	597	75	102	287	496	570	1093
7:00	87	123			67	110				
7:15	108	141			93	79				
7:30	111	89			79	76				
7:45	92	98	398	451	78	62	317	327	715	778
8:00	93	64			75	61				
8:15	93	83			83	51				
8:30	93	94			95	70				
8:45	108	112	387	353	100	47	353	229	740	582
9:00	70	86			111	37				
9:15	107	121			101	46				
9:30	123	79			101	56	0			
9:45	109	82	409	368	140	33	453	172	862	540
10:00	115	79			101	31				
10:15	141	61			120	34				
10:30	130	66			137	26				
10:45	133	68	519	274	123	40	481	131	1000	405
11:00	140	66			121	24				
11:15	135	45			135	26				
11:30	155	40			151	18				
11:45	125	21	555	172	112	13	519	81	1074	253
Total	3003	6065	3003	6065	2954	5267	2954	5267	5957	11332
Combined Total	9068		9068		8221		8221		17289	
AM Peak	11:45 AM				11:45 AM					
Vol.	592				584					
P.H.F.	0.914				0.811					
PM Peak		4:00 PM				3:30 PM				
Vol.		683				727				
P.H.F.		0.974				0.952				
Percentage	33.1%	66.9%			35.9%	64.1%				

Volumes for: Saturday, September 27, 2014 City: Mendocino County Project #: 14-7596-001
Location: US 101 between Mountain House Road and SR 175

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	19	121			14	124				
12:15	22	121			10	127				
12:30	34	135			19	128				
12:45	36	122	111	499	10	130	53	509	164	1008
1:00	22	111			13	127				
1:15	26	131			17	131				
1:30	17	137			16	131				
1:45	9	100	74	479	9	137	55	526	129	1005
2:00	16	123			6	142				
2:15	17	158			7	138				
2:30	10	134			14	132				
2:45	11	134	54	549	4	123	31	535	85	1084
3:00	17	137			7	145				
3:15	12	118			11	99				
3:30	8	132			9	127				
3:45	13	140	50	527	13	122	40	493	90	1020
4:00	12	127			11	113				
4:15	12	114			18	131				
4:30	10	109			19	114				
4:45	17	133	51	483	16	120	64	478	115	961
5:00	11	119			25	116				
5:15	25	106			30	111				
5:30	26	108			33	127				
5:45	15	84	77	417	23	106	111	460	188	877
6:00	30	73			31	75				
6:15	32	80			46	76				
6:30	23	92			39	95				
6:45	50	119	135	364	48	82	164	328	299	692
7:00	40	104			54	70				
7:15	60	103			59	59				
7:30	49	88			53	76				
7:45	70	80	219	375	50	65	216	270	435	645
8:00	77	81			76	64				
8:15	66	95			77	45				
8:30	88	79			79	43				
8:45	76	102	307	357	103	54	335	206	642	563
9:00	83	95			94	45				
9:15	84	66			107	51				
9:30	90	50			123	38	0			
9:45	107	58	364	269	127	43	451	177	815	446
10:00	97	47			116	47				
10:15	96	48			111	30				
10:30	124	40			124	41				
10:45	90	35	407	170	139	43	490	161	897	331
11:00	87	52			112	23				
11:15	101	34			149	26				
11:30	125	41			148	28				
11:45	128	28	441	155	125	23	534	100	975	255
Total	2290	4644	2290	4644	2544	4243	2544	4243	4834	8887
Combined Total	6934		6934		6787		6787		13721	
AM Peak	11:45 AM				10:45 AM					
Vol.	505				548					
P.H.F.	0.935				0.919					
PM Peak		2:15 PM				1:45 PM				
Vol.		563				549				
P.H.F.		0.886				0.967				
Percentage	33.0%	67.0%			37.5%	62.5%				

Volumes for: Sunday, September 28, 2014 City: Mendocino County Project #: 14-7596-001
Location: US 101 between Mountain House Road and SR 175

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	25	141			9	153				
12:15	26	114			10	147				
12:30	24	123			18	162				
12:45	14	89	89	467	16	151	53	613	142	1080
1:00	20	106			27	163				
1:15	12	113			7	168				
1:30	20	98			23	173				
1:45	15	113	67	430	13	181	70	685	137	1115
2:00	16	116			3	172				
2:15	12	124			5	155				
2:30	11	123			9	154				
2:45	9	118	48	481	10	162	27	643	75	1124
3:00	6	118			6	163				
3:15	8	132			4	188				
3:30	5	133			10	162				
3:45	9	129	28	512	9	173	29	686	57	1198
4:00	7	132			6	156				
4:15	9	108			11	167				
4:30	3	110			15	165				
4:45	3	130	22	480	6	141	38	629	60	1109
5:00	16	112			14	163				
5:15	7	134			7	153				
5:30	15	135			11	154				
5:45	11	138	49	519	20	149	52	619	101	1138
6:00	11	104			16	138				
6:15	20	114			17	124				
6:30	26	108			33	126				
6:45	17	110	74	436	29	122	95	510	169	946
7:00	24	139			24	107				
7:15	28	102			47	104				
7:30	37	112			39	94				
7:45	23	69	112	422	44	87	154	392	266	814
8:00	40	96			68	76				
8:15	38	97			49	81				
8:30	43	77			46	61				
8:45	68	68	189	338	73	56	236	274	425	612
9:00	69	72			89	63				
9:15	52	66			90	52				
9:30	67	46			81	34	0			
9:45	92	56	280	240	103	24	363	173	643	413
10:00	77	33			139	32				
10:15	78	52			148	20				
10:30	67	29			138	13				
10:45	79	30	301	144	128	25	553	90	854	234
11:00	77	19			122	14				
11:15	101	34			141	16				
11:30	112	24			140	15				
11:45	101	31	391	108	160	21	563	66	954	174
Total	1650	4577	1650	4577	2233	5380	2233	5380	3883	9957
Combined Total	6227		6227		7613		7613		13840	
AM Peak	11:45 AM				11:45 AM					
Vol.	479				622					
P.H.F.	0.849				0.960					
PM Peak		3:15 PM				1:15 PM				
Vol.		526				694				
P.H.F.		0.983				0.959				
Percentage	26.5%	73.5%			29.3%	70.7%				

Volumes for: Thursday, September 25, 2014 City: Mendocino County Project #: 14-7596-002
Location: SR 175 east of railroad tracks (east of US 101)

Start	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	23			1	23				
12:15	2	22			4	19				
12:30	1	19			2	14				
12:45	0	25	4	89	0	25	7	81	11	170
1:00	2	12			8	18				
1:15	2	13			0	25				
1:30	1	29			1	21				
1:45	0	23	5	77	0	21	9	85	14	162
2:00	1	17			1	27				
2:15	0	24			3	20				
2:30	1	15			12	23				
2:45	1	21	3	77	1	27	17	97	20	174
3:00	0	16			1	20				
3:15	1	22			1	18				
3:30	1	23			1	48				
3:45	3	40	5	101	0	41	3	127	8	228
4:00	2	20			3	24				
4:15	0	12			2	30				
4:30	3	34			5	49				
4:45	10	20	15	86	1	26	11	129	26	215
5:00	8	19			4	31				
5:15	15	36			9	25				
5:30	12	21			5	31				
5:45	29	22	64	98	8	18	26	105	90	203
6:00	11	26			11	16				
6:15	20	17			7	16				
6:30	14	10			10	13				
6:45	25	20	70	73	21	13	49	58	119	131
7:00	11	19			6	17				
7:15	19	17			16	6				
7:30	18	11			31	9				
7:45	19	7	67	54	20	15	73	47	140	101
8:00	26	6			19	4				
8:15	15	10			15	6				
8:30	25	13			15	13				
8:45	24	14	90	43	12	9	61	32	151	75
9:00	19	8			17	5				
9:15	12	9			13	5				
9:30	17	12			21	10				
9:45	12	10	60	39	24	9	75	29	135	68
10:00	19	9			21	5				
10:15	9	9			15	9				
10:30	21	7			15	3				
10:45	23	5	72	30	23	2	74	19	146	49
11:00	18	5			36	3				
11:15	15	1			11	0				
11:30	15	4			16	6				
11:45	13	5	61	15	19	4	82	13	143	28
Total	516	782	516	782	487	822	487	822	1003	1604
Combined Total	1298		1298		1309		1309		2607	
AM Peak	8:00 AM				10:15 AM					
Vol.	90				89					
P.H.F.	0.865				0.618					
PM Peak		4:30 PM				3:45 PM				
Vol.		109				144				
P.H.F.		0.757				0.735				
Percentage	39.8%	60.2%			37.2%	62.8%				

Volumes for: Friday, September 26, 2014 City: Mendocino County Project #: 14-7596-002
Location: SR 175 east of railroad tracks (east of US 101)

Start	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	3	29			10	40				
12:15	3	21			5	25				
12:30	0	22			6	33				
12:45	3	22	9	94	1	28	22	126	31	220
1:00	2	20			3	35				
1:15	1	26			1	35				
1:30	0	19			2	26				
1:45	1	20	4	85	4	20	10	116	14	201
2:00	1	29			0	29				
2:15	0	29			2	23				
2:30	2	37			10	36				
2:45	1	27	4	122	0	24	12	112	16	234
3:00	1	23			2	21				
3:15	0	30			0	29				
3:30	0	46			1	31				
3:45	1	30	2	129	0	34	3	115	5	244
4:00	2	25			2	31				
4:15	0	32			3	30				
4:30	8	34			3	38				
4:45	6	30	16	121	2	32	10	131	26	252
5:00	6	38			6	23				
5:15	18	28			7	22				
5:30	14	20			9	24				
5:45	35	29	73	115	11	24	33	93	106	208
6:00	21	27			9	38				
6:15	16	21			6	17				
6:30	14	27			12	17				
6:45	29	22	80	97	18	6	45	78	125	175
7:00	18	20			9	11				
7:15	16	18			17	6				
7:30	16	18			34	14				
7:45	19	9	69	65	23	10	83	41	152	106
8:00	23	13			16	17				
8:15	17	10			20	23				
8:30	14	18			18	21				
8:45	24	11	78	52	18	13	72	74	150	126
9:00	18	9			17	9				
9:15	30	6			24	7				
9:30	16	12			17	7				
9:45	11	7	75	34	24	4	82	27	157	61
10:00	15	18			17	12				
10:15	16	6			12	5				
10:30	18	8			12	8				
10:45	15	11	64	43	23	17	64	42	128	85
11:00	27	4			10	7				
11:15	19	5			21	8				
11:30	27	4			21	6				
11:45	18	5	91	18	25	8	77	29	168	47
Total	565	975	565	975	513	984	513	984	1078	1959
Combined Total	1540		1540		1497		1497		3037	
AM Peak	11:30 AM				11:45 AM					
Vol.	95				123					
P.H.F.	0.819				0.769					
PM Peak		4:15 PM				3:45 PM				
Vol.		134				133				
P.H.F.		0.882				0.875				
Percentage	36.7%	63.3%			34.3%	65.7%				

Volumes for: Saturday, September 27, 2014 City: Mendocino County Project #: 14-7596-002
Location: SR 175 east of railroad tracks (east of US 101)

Start	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	4	29			10	24				
12:15	4	19			4	18				
12:30	3	23			7	18				
12:45	3	25	14	96	4	24	25	84	39	180
1:00	2	24			5	19				
1:15	1	24			6	19				
1:30	1	29			3	28				
1:45	2	24	6	101	2	24	16	90	22	191
2:00	2	18			0	19				
2:15	2	22			5	28				
2:30	1	26			10	17				
2:45	1	20	6	86	1	25	16	89	22	175
3:00	1	27			3	17				
3:15	0	24			6	17				
3:30	0	41			0	12				
3:45	0	32	1	124	4	22	13	68	14	192
4:00	0	40			0	28				
4:15	1	26			0	20				
4:30	2	27			1	23				
4:45	3	19	6	112	1	22	2	93	8	205
5:00	0	19			3	12				
5:15	2	18			4	25				
5:30	7	13			0	13				
5:45	14	28	23	78	3	15	10	65	33	143
6:00	7	10			6	21				
6:15	6	18			8	19				
6:30	12	16			4	16				
6:45	10	27	35	71	6	16	24	72	59	143
7:00	3	14			6	15				
7:15	7	14			10	12				
7:30	11	12			10	10				
7:45	10	16	31	56	8	7	34	44	65	100
8:00	6	17			13	10				
8:15	11	20			8	7				
8:30	9	13			14	6				
8:45	16	20	42	70	9	11	44	34	86	104
9:00	13	10			13	12				
9:15	7	7			13	8				
9:30	18	11			16	14				
9:45	15	17	53	45	19	13	61	47	114	92
10:00	24	9			18	11				
10:15	19	9			13	10				
10:30	21	5			24	28				
10:45	17	6	81	29	19	23	74	72	155	101
11:00	15	7			15	10				
11:15	24	9			22	14				
11:30	19	5			15	27				
11:45	34	2	92	23	18	12	70	63	162	86
Total	390	891	390	891	389	821	389	821	779	1712
Combined Total	1281		1281		1210		1210		2491	
AM Peak	11:15 AM				10:30 AM					
Vol.	106				80					
P.H.F.	0.779				0.833					
PM Peak		3:30 PM				1:30 PM				
Vol.		139				99				
P.H.F.		0.848				0.884				
Percentage	30.4%	69.6%			32.1%	67.9%				

Volumes for: Sunday, September 28, 2014 City: Mendocino County Project #: 14-7596-002
Location: SR 175 east of railroad tracks (east of US 101)

Start	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	8	23			19	24				
12:15	3	21			17	26				
12:30	5	18			9	18				
12:45	4	12	20	74	6	18	51	86	71	160
1:00	3	22			19	19				
1:15	2	22			6	28				
1:30	8	23			11	26				
1:45	3	23	16	90	5	24	41	97	57	187
2:00	3	23			4	35				
2:15	1	14			4	27				
2:30	0	8			2	27				
2:45	1	25	5	70	2	20	12	109	17	179
3:00	0	21			2	19				
3:15	2	16			1	27				
3:30	0	18			1	22				
3:45	0	24	2	79	0	25	4	93	6	172
4:00	0	22			1	24				
4:15	2	16			6	27				
4:30	1	16			3	22				
4:45	2	25	5	79	1	21	11	94	16	173
5:00	0	13			4	13				
5:15	0	7			0	15				
5:30	10	16			4	26				
5:45	11	18	21	54	2	12	10	66	31	120
6:00	5	9			2	23				
6:15	9	16			2	19				
6:30	7	16			2	15				
6:45	14	10	35	51	6	21	12	78	47	129
7:00	9	11			4	18				
7:15	18	12			6	12				
7:30	13	15			11	12				
7:45	7	13	47	51	3	11	24	53	71	104
8:00	11	5			13	9				
8:15	5	10			4	10				
8:30	13	11			13	4				
8:45	20	11	49	37	10	7	40	30	89	67
9:00	9	7			10	9				
9:15	15	7			12	5				
9:30	10	6			8	5				
9:45	17	7	51	27	16	6	46	25	97	52
10:00	21	6			29	6				
10:15	14	4			12	4				
10:30	11	4			20	3				
10:45	19	2	65	16	25	3	86	16	151	32
11:00	16	3			11	5				
11:15	16	7			19	6				
11:30	23	7			23	3				
11:45	22	2	77	19	21	0	74	14	151	33
Total	393	647	393	647	411	761	411	761	804	1408
Combined Total	1040		1040		1172		1172		2212	
AM Peak	11:30 AM				11:30 AM					
Vol.	89				94					
P.H.F.	0.967				0.904					
PM Peak		1:15 PM				1:15 PM				
Vol.		91				113				
P.H.F.		0.989				0.807				
Percentage	37.8%	62.2%			35.1%	64.9%				

Appendix D

Speed Surveys

County of Mendocino: Hopland Area
Engineering and Traffic Survey

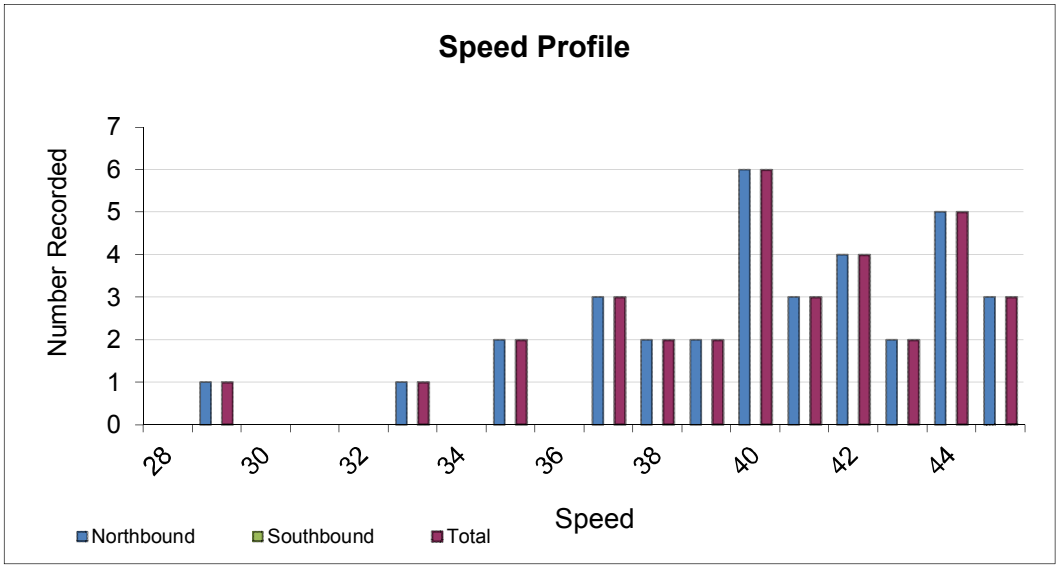
Street: US 101 (Northbound) ***From:*** Solar Living Driveway ***To:*** Mountain House Rd

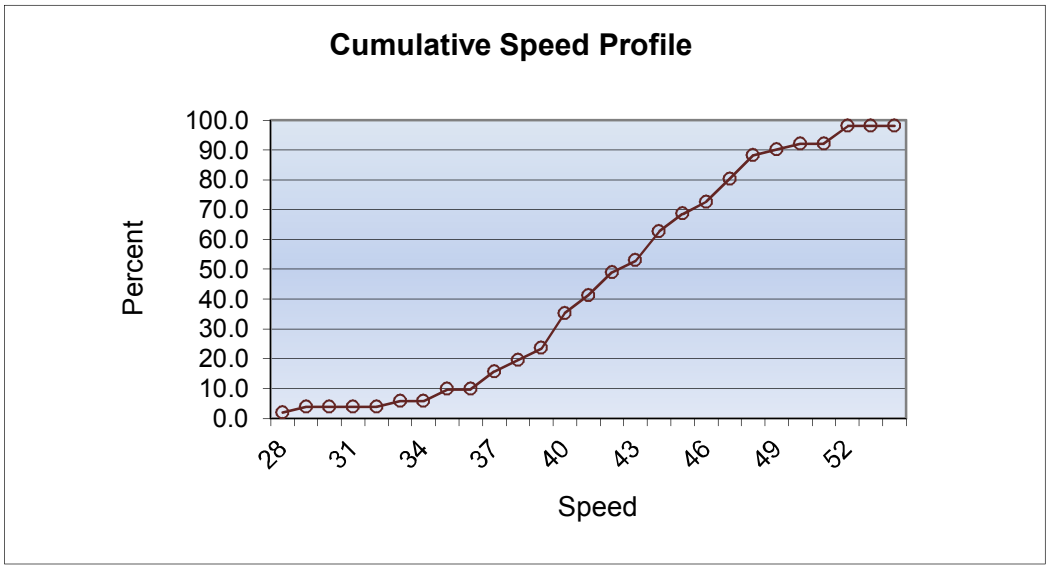
Street Conditions

Posted Limit:	35
Width:	35 feet
Lanes:	2
Configuration:	Undivided
Parking:	None
Bike Facility:	None
Sidewalks:	None
Character:	Rural
Terrain:	Flat

Observations and Evaluation

Vehicles Sampled:	51		
85th Percentile Speed:	**48**	mph	
Mean (50th Percentile) Speed:	43	mph	
Pace:	38	to	48 mph
Percent in Pace:	68.6%		





County of Mendocino: Hopland Area
Engineering and Traffic Survey

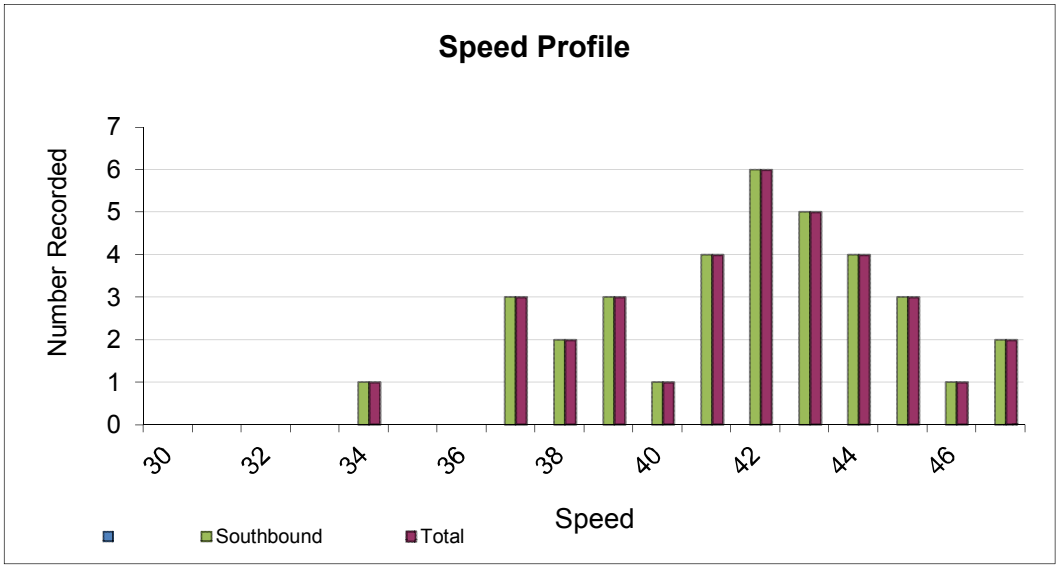
Street: US 101 (Southbound) ***From:*** Solar Living Driveway ***To:*** Mountain House Rd

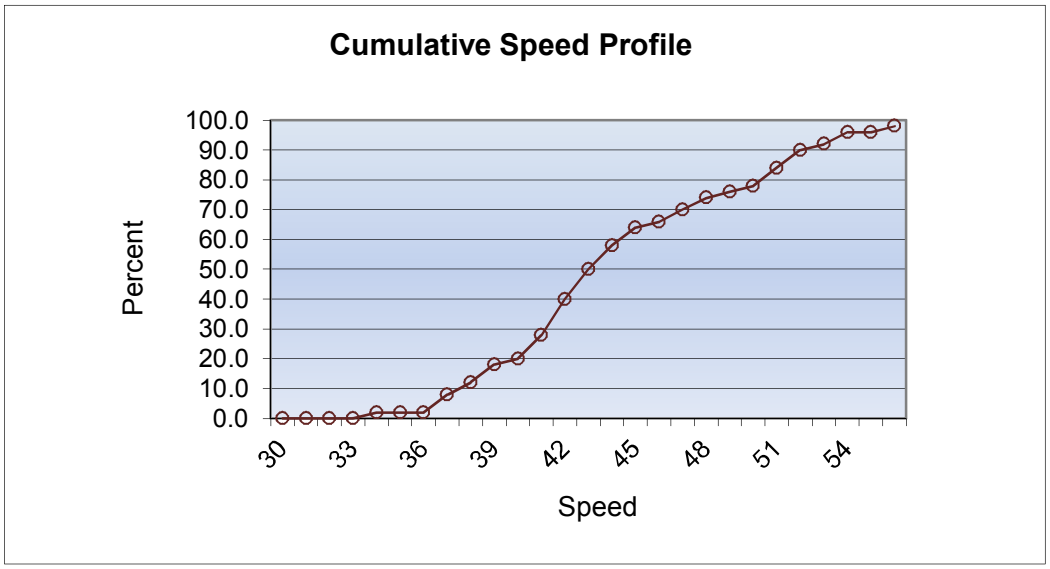
Street Conditions

Posted Limit:	35
Width:	35 feet
Lanes:	2
Configuration:	Undivided
Parking:	None
Bike Facility:	None
Sidewalks:	None
Character:	Rural
Terrain:	Flat

Observations and Evaluation

Vehicles Sampled:	50		
85th Percentile Speed:	**52**	mph	
Mean (50th Percentile) Speed:	43	mph	
Pace:	36	to	46 mph
Percent in Pace:	64.0%		





County of Mendocino: Hopland Area
Engineering and Traffic Survey

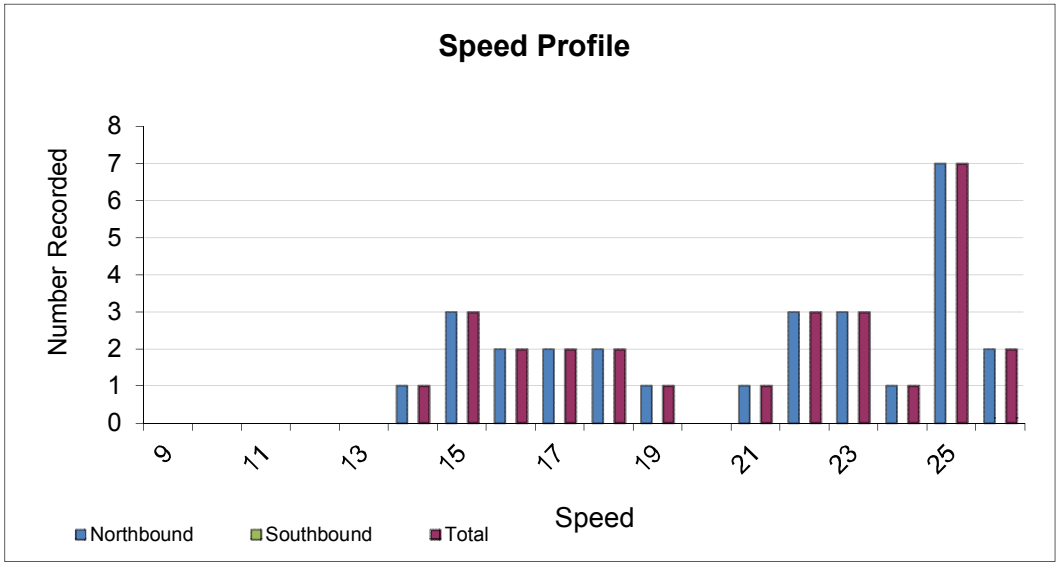
Street: US 101 (Northbound) ***From:*** Mountain House Rd ***To:*** SR 175

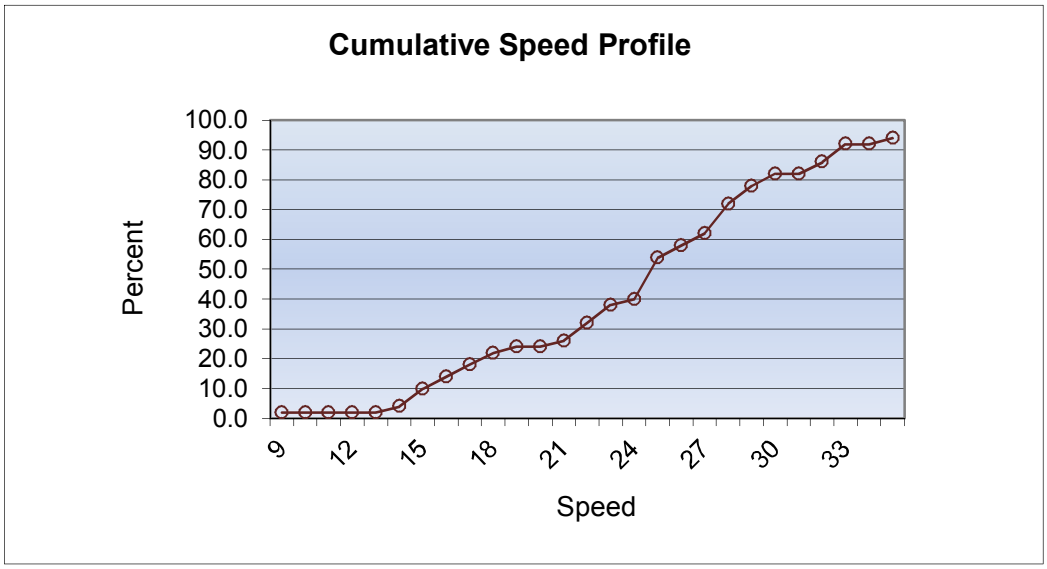
Street Conditions

Posted Limit:	35
Width:	64 feet
Lanes:	2
Configuration:	2-way LT lane
Parking:	None
Bike Facility:	None
Sidewalks:	Both Sides
Character:	Rural
Terrain:	Flat

Observations and Evaluation

Vehicles Sampled:	50
85th Percentile Speed:	**32** mph
Mean (50th Percentile) Speed:	25 mph
Pace:	20 to 30 mph
Percent in Pace:	58.0%





County of Mendocino: Hopland Area
Engineering and Traffic Survey

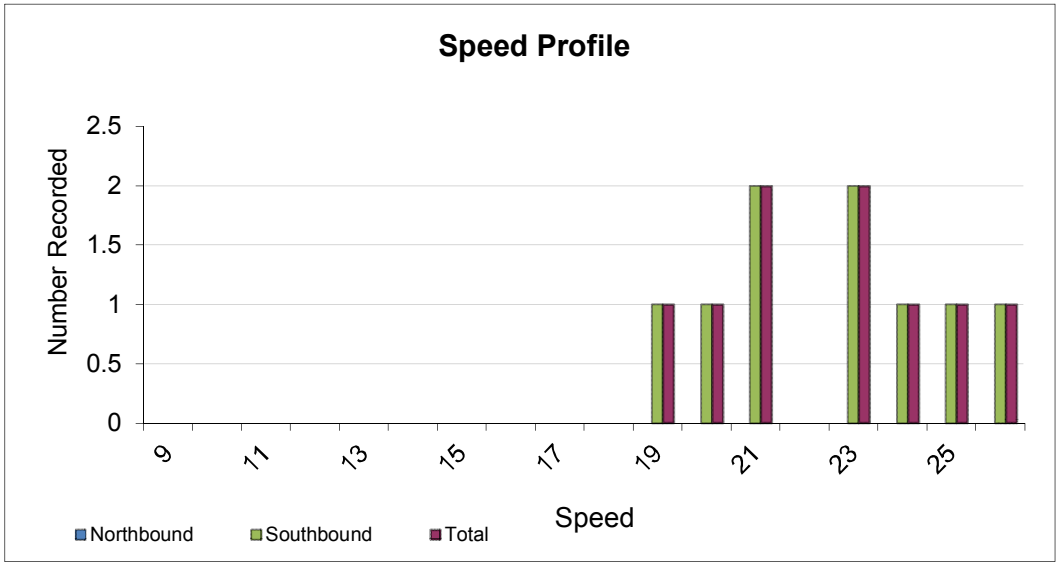
Street: US 101 (Southbound) ***From:*** Mountain House Rd ***To:*** SR 175

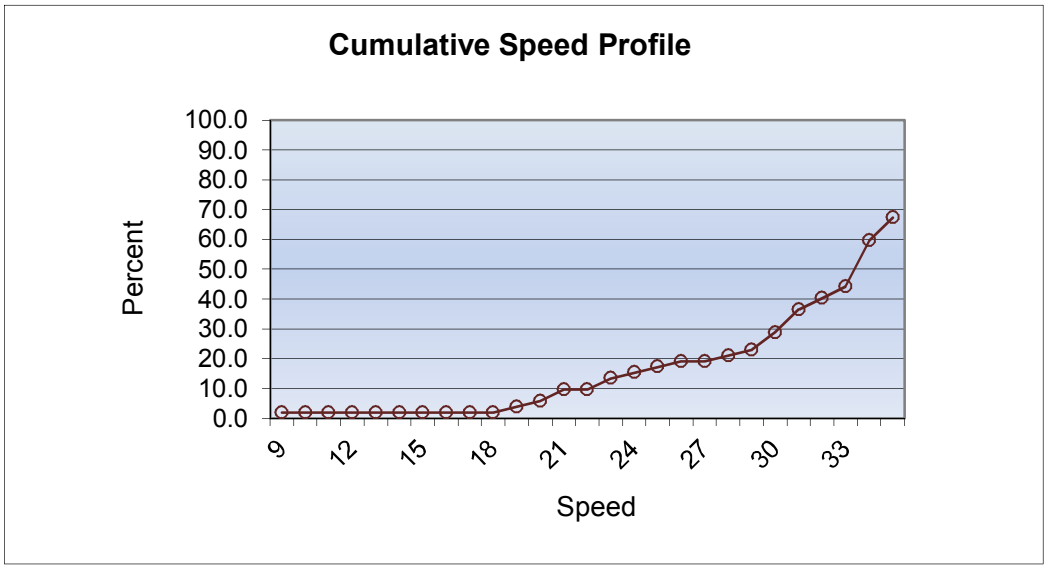
Street Conditions

Posted Limit:	35
Width:	64 feet
Lanes:	2
Configuration:	2-way LT lane
Parking:	None
Bike Facility:	None
Sidewalks:	Both Sides
Character:	Rural
Terrain:	Flat

Observations and Evaluation

Vehicles Sampled:	52		
85th Percentile Speed:	**40**	mph	
Mean (50th Percentile) Speed:	34	mph	
Pace:	27	to	37 mph
Percent in Pace:	63.5%		





County of Mendocino: Hopland Area
Engineering and Traffic Survey

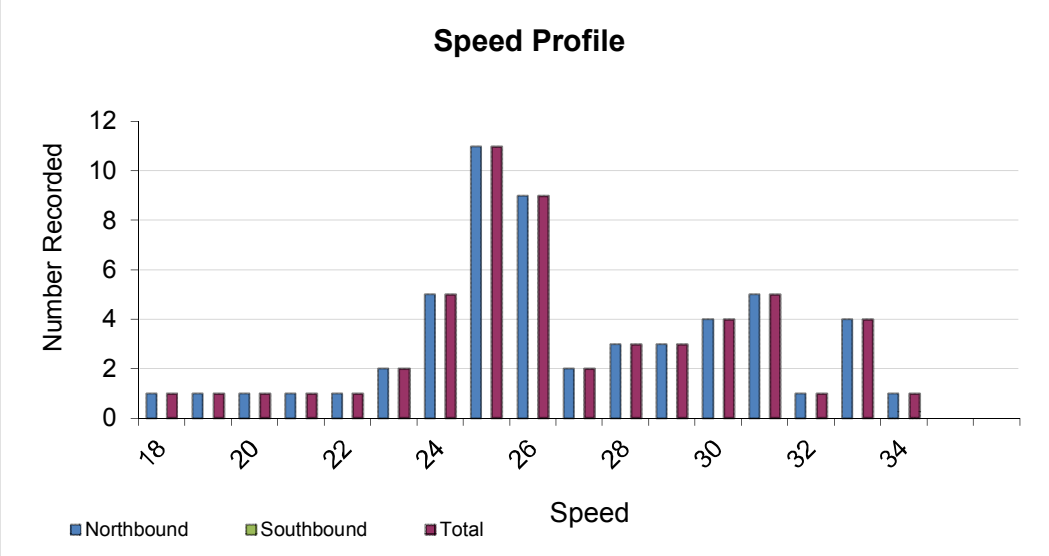
Street: US 101 (Northbound) ***From:*** SR 175 ***To:*** Center Drive

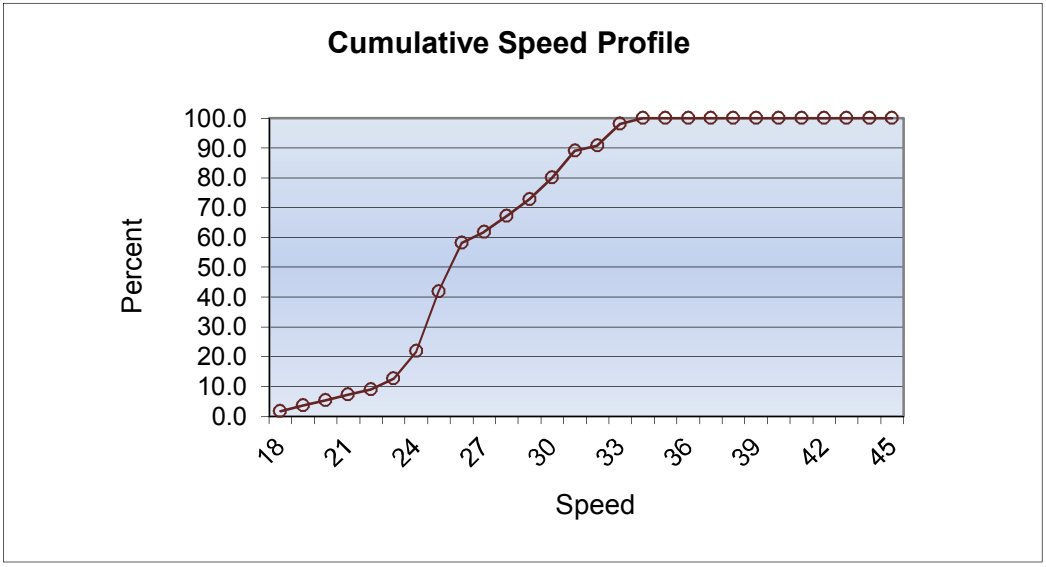
Street Conditions

Posted Limit: 35
Width: 38 feet
Lanes: 2
Configuration: 2-way LT lane
Parking: Both Sides
Bike Facility: None
Sidewalks: Both Sides
Character: Rural
Terrain: Flat

Observations and Evaluation

Vehicles Sampled: 55
85th Percentile Speed: **31** mph
Mean (50th Percentile) Speed: 26 mph
Pace: 23 to 33 mph
Percent in Pace: 85.5%





County of Mendocino: Hopland Area
Engineering and Traffic Survey

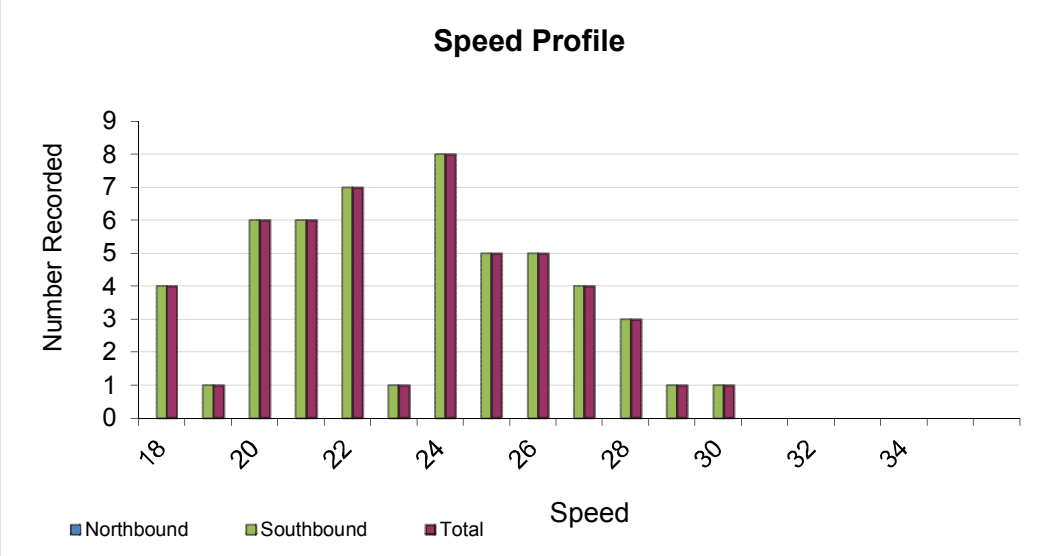
Street: US 101 (Southbound) ***From:*** SR 175 ***To:*** Center Drive

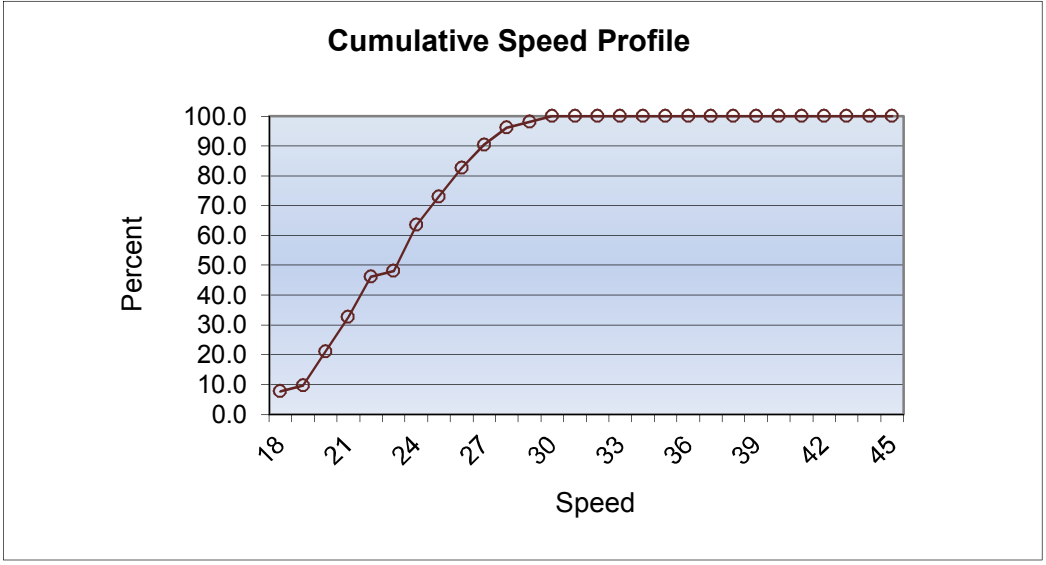
Street Conditions

Posted Limit: 35
Width: 38 feet
Lanes: 2
Configuration: 2-way LT lane
Parking: Both Sides
Bike Facility: None
Sidewalks: Both Sides
Character: Rural
Terrain: Flat

Observations and Evaluation

Vehicles Sampled: 52
85th Percentile Speed: **27** mph
Mean (50th Percentile) Speed: 24 mph
Pace: 17 to 27 mph
Percent in Pace: 90.4%





County of Mendocino: Hopland Area
Engineering and Traffic Survey

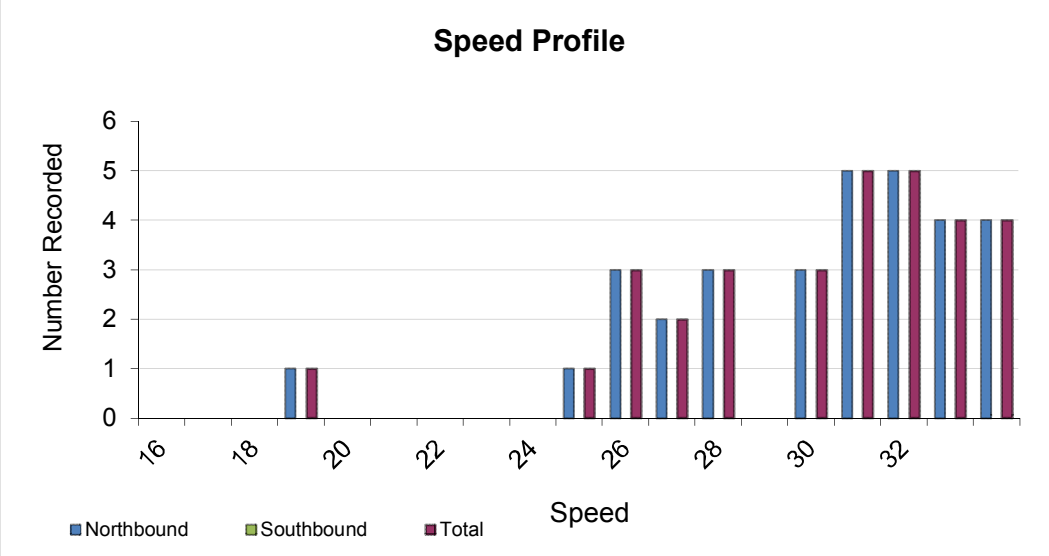
Street: US 101 (Northbound) ***From:*** Center Drive ***To:*** First Street

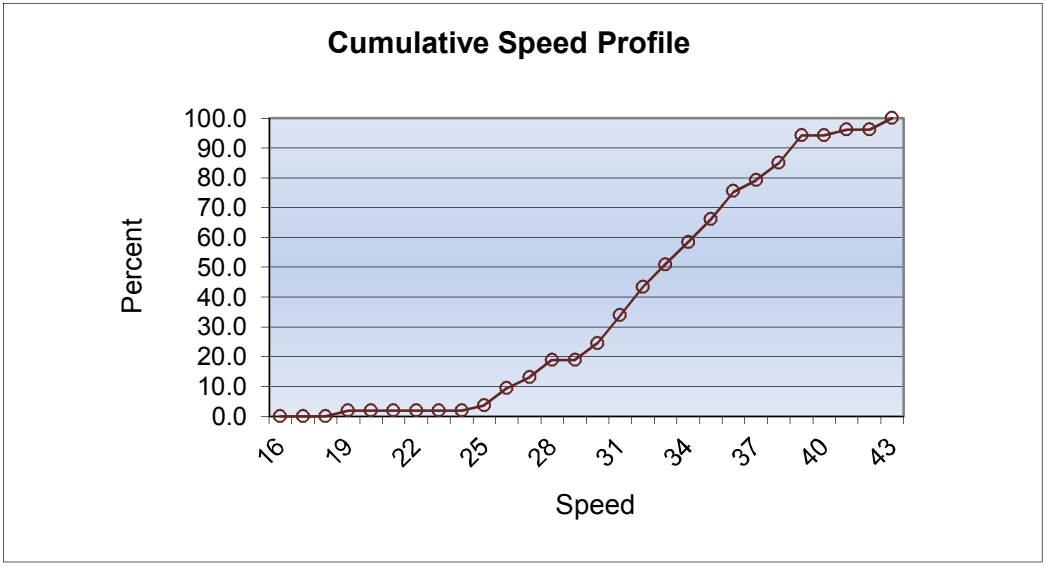
Street Conditions

Posted Limit: 35
Width: 65 feet
Lanes: 2
Configuration: 2-way LT lane
Parking: Both Sides
Bike Facility: None
Sidewalks: Both Sides
Character: Rural
Terrain: Flat

Observations and Evaluation

Vehicles Sampled: 53
85th Percentile Speed: **39** mph
Mean (50th Percentile) Speed: 33 mph
Pace: 29 to 39 mph
Percent in Pace: 75.5%





County of Mendocino: Hopland Area
Engineering and Traffic Survey

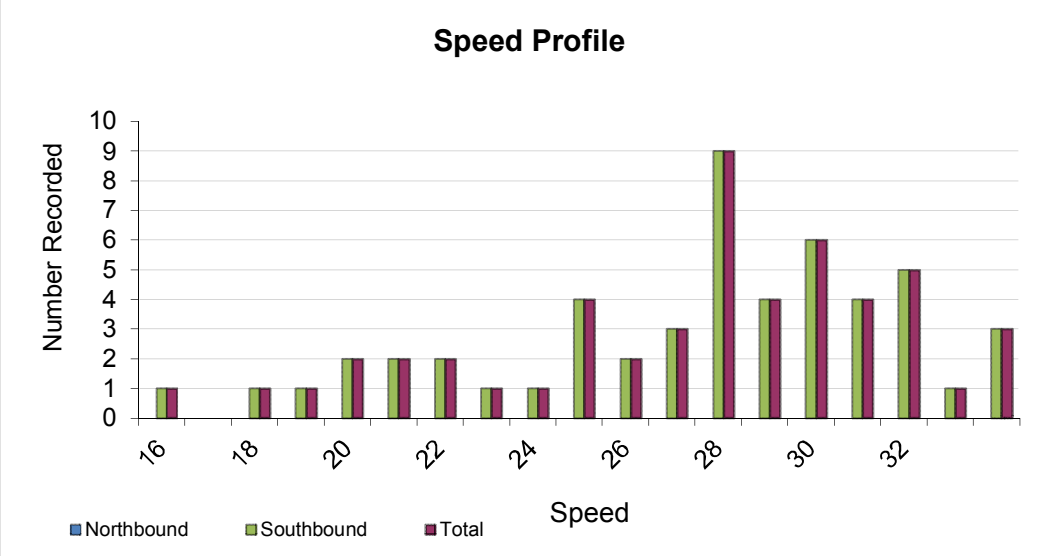
Street: US 101 (Southbound) ***From:*** Center Drive ***To:*** First Street

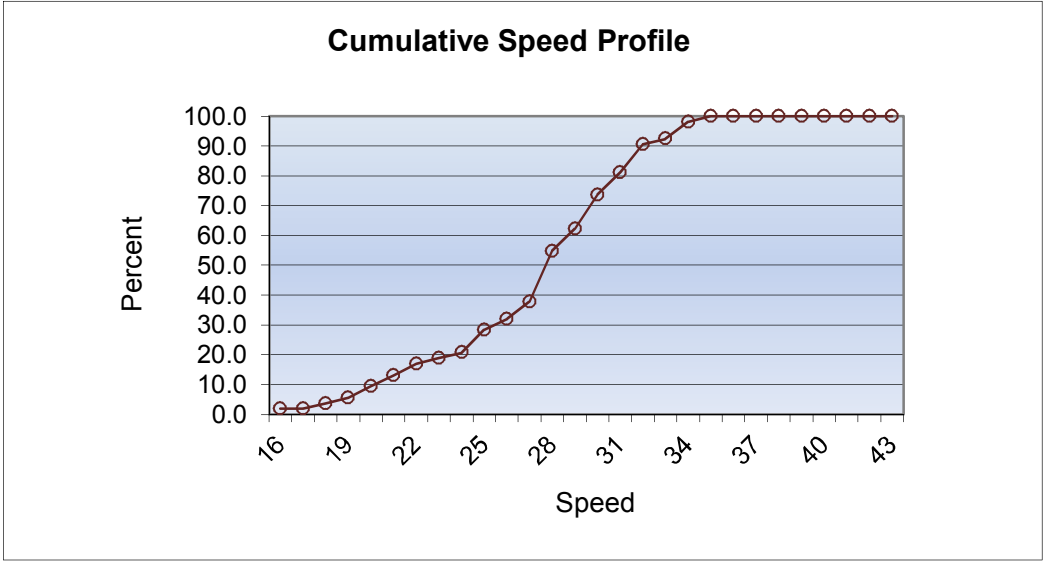
Street Conditions

Posted Limit:	35
Width:	65 feet
Lanes:	2
Configuration:	2-way LT lane
Parking:	Both Sides
Bike Facility:	None
Sidewalks:	Both Sides
Character:	Rural
Terrain:	Flat

Observations and Evaluation

Vehicles Sampled:	53		
85th Percentile Speed:	**32**	mph	
Mean (50th Percentile) Speed:	28	mph	
Pace:	24	to	34 mph
Percent in Pace:	77.4%		





County of Mendocino: Hopland Area
Engineering and Traffic Survey

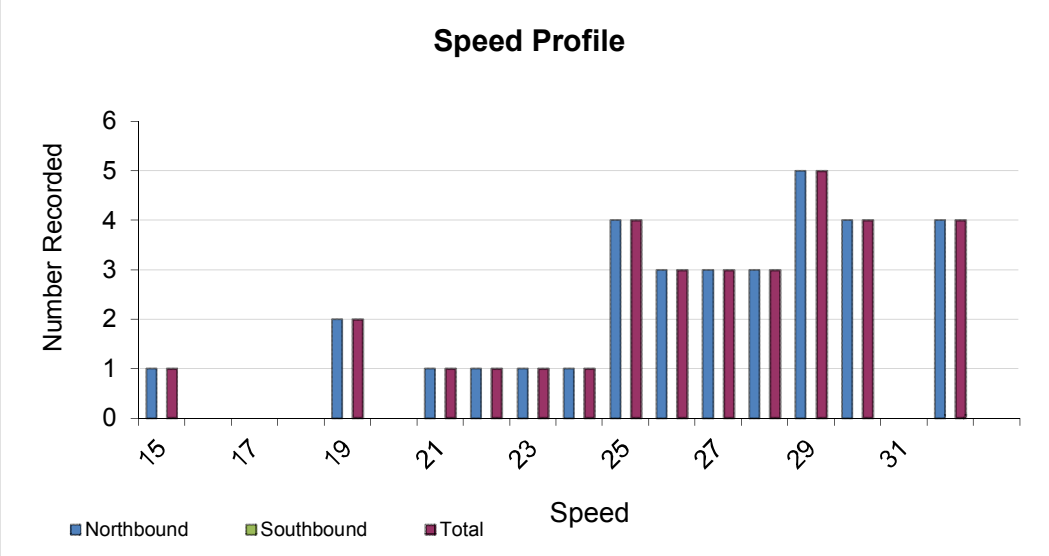
Street: SR 175 (Eastbound) ***From:*** Howell Street ***To:*** McDowell Street

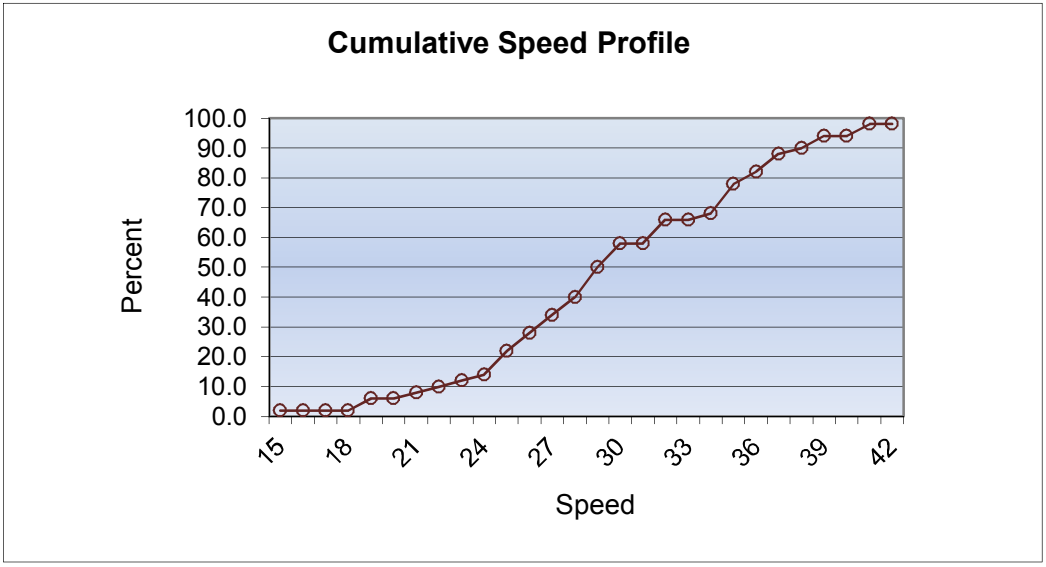
Street Conditions

Posted Limit: 35
Width: 26 feet
Lanes: 2
Configuration: Undivided
Parking: None
Bike Facility: None
Sidewalks: None
Character: Rural
Terrain: Flat

Observations and Evaluation

Vehicles Sampled: 50
85th Percentile Speed: **37** mph
Mean (50th Percentile) Speed: 29 mph
Pace: 25 to 35 mph
Percent in Pace: 56.0%





County of Mendocino: Hopland Area
Engineering and Traffic Survey

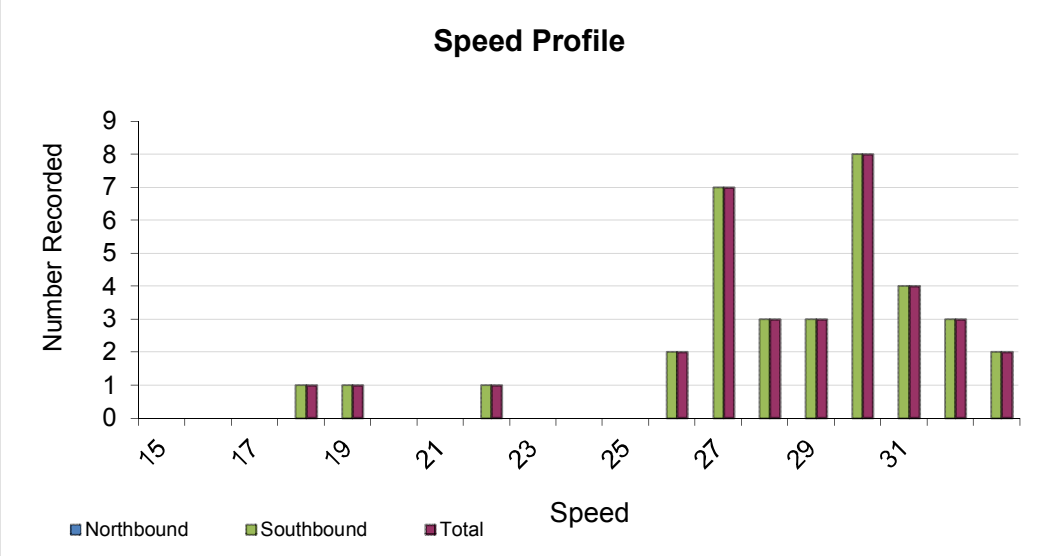
Street: SR 175 (Westbound) ***From:*** Howell Street ***To:*** McDowell Street

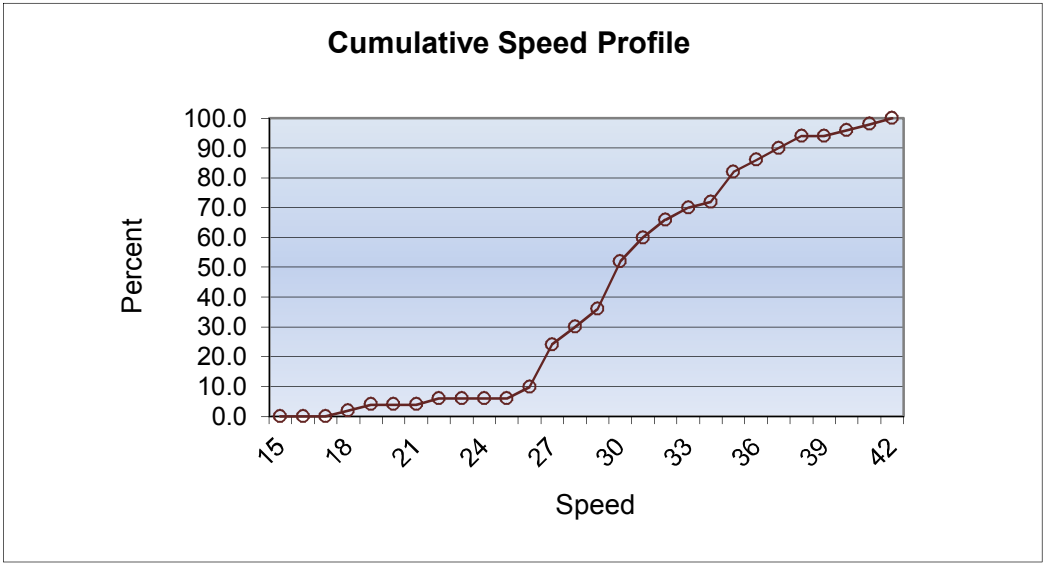
Street Conditions

Posted Limit: 35
Width: 26 feet
Lanes: 2
Configuration: Undivided
Parking: None
Bike Facility: None
Sidewalks: None
Character: Rural
Terrain: Flat

Observations and Evaluation

Vehicles Sampled: 50
85th Percentile Speed: **36** mph
Mean (50th Percentile) Speed: 30 mph
Pace: 26 to 36 mph
Percent in Pace: 76.0%





Appendix E

Collision Rates

Intersection Collision Rate Calculaions

Hopland Main St Corridor EFS

Intersection # 1: US 101 & Hewlett Sturtevant Rd

Date of Count: Wednesday, September 10, 2014

Number of Collisions: 4
Number of Injuries: 2
Number of Fatalities: 0
ADT: 10100
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{4 \times 1{,}000{,}000}{10{,}100 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.22 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2010 Collision Data on California State Highways, Caltrans

Intersection # 2: US 101 & SR 175

Date of Count: Thursday, September 25, 2014

Number of Collisions: 4
Number of Injuries: 4
Number of Fatalities: 0
ADT: 11400
Start Date: July 1, 2008
End Date: June 30, 2013
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{4 \times 1{,}000{,}000}{11{,}400 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.19 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2010 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

Hopland Main St Corridor EFS

Intersection # 3: US 101 & Mountain House Rd

Date of Count: Thursday, September 25, 2014

Number of Collisions: 1
Number of Injuries: 0
Number of Fatalities: 0
ADT: 10100
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{1 \times 1{,}000{,}000}{10{,}100 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.05 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2010 Collision Data on California State Highways, Caltrans

Intersection # 4: Feliz Creek Rd & Mountain House Rd

Date of Count: Wednesday, September 10, 2014

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 1500
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Rural

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \times 1{,}000{,}000}{1{,}500 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.23 c/mve**	**2.0%**	**40.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2010 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

Hopland Main St Corridor EFS

Intersection # 5: SR 175 & Old River Rd

Date of Count: Thursday, September 25, 2014

Number of Collisions: 2
Number of Injuries: 1
Number of Fatalities: 0
ADT: 3300
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{2 \times 1{,}000{,}000}{3{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.33 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2010 Collision Data on California State Highways, Caltrans

Intersection # 6: SR 175 & Lakeport-Hopland 175 Rd

Date of Count: Wednesday, September 10, 2014

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 3200
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Rural

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \times 1{,}000{,}000}{3{,}200 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.23 c/mve**	**2.0%**	**40.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2010 Collision Data on California State Highways, Caltrans

SEGMENT COLLISION RATE CALCULATIONS

Hopland Main St Corridor EFS

Location: US 101 from PM 10.24 to PM 11.60

Date of Count: Friday, September 26, 2014
ADT: 14,200

Number of Collisions: 35
Number of Injuries: 12
Number of Fatalities: 0
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Flat

Segment Length: 1.4 miles
Direction: North/South

$$\frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Segment Length} \times \text{Number of Years}}$$

$$\frac{35 \times 1{,}000{,}000}{14{,}200 \times 365 \times 1.4 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.96 c/mvm**	**0.0%**	**34.3%**
Statewide Average*	**0.84 c/mvm**	**2.4%**	**40.1%**

ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2010 Collision Data on California State Highways, Caltrans

Location: SR 175 from PM 0.69 to 1.16

Date of Count: Friday, September 26, 2014
ADT: 4,900

Number of Collisions: 3
Number of Injuries: 2
Number of Fatalities: 0
Start Date: October 1, 2007
End Date: September 30, 2012
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Flat

Segment Length: 0.5 miles
Direction: East/West

$$\frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Segment Length} \times \text{Number of Years}}$$

$$\frac{3 \times 1{,}000{,}000}{4{,}900 \times 365 \times 0.5 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.67 c/mvm**	**0.0%**	**66.7%**
Statewide Average*	**0.89 c/mvm**	**2.4%**	**40.1%**

ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2010 Collision Data on California State Highways, Caltrans

Appendix F

Vehicle Operational Analysis Methodology

Vehicular Operational Analysis Methodology

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2010. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

Roundabout intersection control were evaluated using the FHWA Roundabout Method, also contained within the Unsignalized Methodology of the HCM. This methodology determines intersection operation using empirical formulas based on observations at United States roundabouts, using basic geometric and volume data to calculate entering and circulating flows. This information is then translated to an overall average vehicle delay. The LOS break points have been set at the same delays as used in the signalized methodology for the purpose of this study. The ranges of delay associated with the various levels of service are indicated in Table E-1.

Table F-1
Intersection Level of Service Criteria

LOS	Two-Way Stop-Controlled	Roundabout & Traffic Signal
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 20 seconds.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 20 to 35 seconds.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 35 to 55 seconds.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 55 to 80 seconds.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 80 seconds.

Reference: *Highway Capacity Manual,* Transportation Research Board, 2000

Roadway Segment Level of Service Methodology

The roadway segment Level of Service methodology found in Chapter 15, "Two-Lane Highways," of the *Highway Capacity Manual* is the basis of the automobile LOS analysis. The methodology considers traffic volumes, terrain, roadway cross-section, the proportion of heavy vehicles, and the availability of passing

zones. The LOS criteria for two-lane highways differs depending on whether the highway is considered "Class I", "Class II", or "Class III". Class I highways are typically long-distance routes connecting major traffic generators or national highway networks where motorists expect to travel at high speeds. Motorists do not necessarily expect to travel at high speeds on Class II highways, which often function as scenic or recreational routes and typically serve shorter trips. Class III highways may be portions of Class I or Class II highways that pass through towns and communities and have a mix of local traffic and through traffic.

The measure of effectiveness by which Level of Service is determined on Class II highways is percent time spent following (PTSF), or the proportion of time that drivers on the highway are limited in their speed by a driver in front of them. Class III highways are measured by percent of free-flow speed (PFFS), which represents the ability of vehicles to travel at or near the posted speed limit. US 101 was defined as a Class III roadway and SR 175 was defined as a Class II roadway for the purposes of this analysis. A summary of the ATS, PTSF, and PFFS breakpoints is shown in Table E-2.

Table F-2
Automobile Level of Service Criteria

Level of Service	Class II Highways	Class III Highways
	PTSF (%)	PFFS (%)
A	≤40	>91.7
B	>40-55	>83.3-91.7
C	>55-70	>75.0-83.3
D	>70-85	>66.7-75.0
E	≤85	≤66.7

Notes: LOS = Level of Service;
ATS = Average Travel Speed;
PTSF = Percent Time Spent Following;
PFFS = Percent of Free-Flow Speed
Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

Traffic Operation Standards

In the Guide for the Preparation of Traffic Impact Studies, Caltrans indicates that they endeavor to maintain operation at the transition from LOS C to LOS D, however, where operation is already below LOS C the existing measure of effectiveness should be maintained.

Appendix G

Intersection Level of Service Calculations

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	8	0	480	520	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	11	11	2
Mvmt Flow	0	8	0	480	520	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1000	520	520	0	-	0
Stage 1	520	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	270	556	1046	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	270	556	1046	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	622	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1046	-	556	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-
HCM Control Delay (s)	0	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	91	417	31	67	500
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	None
Storage Length	0	60	-	100	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	8	8	11	8	8	11
Mvmt Flow	33	101	463	34	74	556

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1167	463	0	-	463	0
Stage 1	463	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	208	587	-	0	1067	-
Stage 1	621	-	-	0	-	-
Stage 2	480	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	194	587	-	-	1067	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	447	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	322	587	1067	-
HCM Lane V/C Ratio	-	0.104	0.172	0.07	-
HCM Control Delay (s)	-	17.5	12.4	8.6	-
HCM Lane LOS	-	C	B	A	-
HCM 95th %tile Q(veh)	-	0.3	0.6	0.2	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	43	9	13	417	469	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	400	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	11	11	2
Mvmt Flow	48	10	14	463	521	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1013	521	521	0	-	0
Stage 1	521	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	265	555	1045	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	555	1045	-	-	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1045	-	415	-	-
HCM Lane V/C Ratio	0.014	-	0.139	-	-
HCM Control Delay (s)	8.5	-	15.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	4	0	4	4	4	4	32	12	20	40	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	0	4	4	4	4	32	12	20	40	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	140	142	50	138	146	38	60	0	0	44	0	0
Stage 1	90	90	-	46	46	-	-	-	-	-	-	-
Stage 2	50	52	-	92	100	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	830	749	1018	833	745	1034	1544	-	-	1564	-	-
Stage 1	917	820	-	968	857	-	-	-	-	-	-	-
Stage 2	963	852	-	915	812	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	813	737	1018	819	733	1034	1544	-	-	1564	-	-
Mov Cap-2 Maneuver	813	737	-	819	733	-	-	-	-	-	-	-
Stage 1	914	809	-	965	854	-	-	-	-	-	-	-
Stage 2	952	849	-	899	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	9.3	0.6	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1544	-	-	786	845	1564	-	-
HCM Lane V/C Ratio	0.003	-	-	0.015	0.014	0.013	-	-
HCM Control Delay (s)	7.3	0	-	9.7	9.3	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	99	7	42	128	3	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	8	2	2	8	2	2
Mvmt Flow	122	9	52	158	4	65

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	122	0	122	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1465	-	873	929
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1465	-	842	929
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	929	-	-	1465	-
HCM Lane V/C Ratio	0.07	-	-	0.035	-
HCM Control Delay (s)	9.2	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

MOVEMENT SUMMARY

Site: SR 175 & Old River Road

PM Peak Hour
Existing Conditions
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB SR 175-Main Street											
3	L2	1	2.0	0.097	3.5	LOS A	0.4	11.3	0.06	0.01	25.8
8	T1	12	2.0	0.097	3.5	LOS A	0.4	11.3	0.06	0.01	24.9
18	R2	116	8.0	0.097	3.5	LOS A	0.4	11.3	0.06	0.01	23.7
Approach		129	7.4	0.097	3.5	LOS A	0.4	11.3	0.06	0.01	23.8
East: WB Lakeport-Hopland 175 Road											
1	L2	80	8.0	0.065	3.3	LOS A	0.3	7.3	0.08	0.02	28.1
6	T1	1	2.0	0.065	3.3	LOS A	0.3	7.3	0.08	0.02	28.4
16	R2	4	2.0	0.065	3.3	LOS A	0.3	7.3	0.08	0.02	27.2
Approach		85	7.6	0.065	3.3	LOS A	0.3	7.3	0.08	0.02	28.0
North: SB Old River Road											
7	L2	4	2.0	0.078	3.4	LOS A	0.3	8.9	0.22	0.09	26.1
4	T1	96	2.0	0.078	3.4	LOS A	0.3	8.9	0.22	0.09	25.1
14	R2	1	2.0	0.078	3.4	LOS A	0.3	8.9	0.22	0.09	24.0
Approach		101	2.0	0.078	3.4	LOS A	0.3	8.9	0.22	0.09	25.2
West: EB Driveway											
5	L2	4	2.0	0.005	3.1	LOS A	0.0	0.5	0.31	0.14	29.6
2	T1	1	2.0	0.005	3.1	LOS A	0.0	0.5	0.31	0.14	29.3
12	R2	1	2.0	0.005	3.1	LOS A	0.0	0.5	0.31	0.14	28.0
Approach		6	2.0	0.005	3.1	LOS A	0.0	0.5	0.31	0.14	29.3
All Vehicles		321	5.7	0.097	3.4	LOS A	0.4	11.3	0.12	0.04	25.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	10	0	624	676	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	11	11	2
Mvmt Flow	0	10	0	624	676	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1300	676	676	0	-	0
Stage 1	676	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	178	453	915	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	178	453	915	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	915	-	453	-	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	0	-	13.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	42	127	542	40	87	650
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	None
Storage Length	0	60	-	100	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	8	8	11	8	8	11
Mvmt Flow	42	127	542	40	87	650

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1366	542	0	-	542	0
Stage 1	542	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	157	529	-	0	997	-
Stage 1	571	-	-	0	-	-
Stage 2	421	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	143	529	-	-	997	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	384	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	271	529	997	-
HCM Lane V/C Ratio	-	0.155	0.24	0.087	-
HCM Control Delay (s)	-	20.7	13.9	9	-
HCM Lane LOS	-	C	B	A	-
HCM 95th %tile Q(veh)	-	0.5	0.9	0.3	-

MOVEMENT SUMMARY

Site: US 101 & SR 175 - Future PM

PM Peak Hour
Future Conditions
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: US 101											
8	T1	542	11.0	0.494	8.5	LOS A	3.2	85.7	0.35	0.19	33.0
18	R2	40	8.0	0.494	8.5	LOS A	3.2	85.7	0.35	0.19	32.2
Approach		582	10.8	0.494	8.5	LOS A	3.2	85.7	0.35	0.19	33.0
East: SR 175											
1	L2	42	8.0	0.232	7.6	LOS A	0.9	25.2	0.61	0.59	32.7
16	R2	127	8.0	0.232	7.6	LOS A	0.9	25.2	0.61	0.59	31.9
Approach		169	8.0	0.232	7.6	LOS A	0.9	25.2	0.61	0.59	32.1
North: US 101											
7	L2	87	8.0	0.595	10.1	LOS B	4.7	126.9	0.28	0.12	32.0
4	T1	650	11.0	0.595	10.1	LOS B	4.7	126.9	0.28	0.12	32.0
Approach		737	10.6	0.595	10.1	LOS B	4.7	126.9	0.28	0.12	32.0
All Vehicles		1488	10.4	0.595	9.2	LOS A	4.7	126.9	0.35	0.20	32.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	56	12	17	542	610	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	400	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	11	11	2
Mvmt Flow	56	12	17	542	610	81

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1186	610	610	0	-	0
Stage 1	610	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	208	494	969	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	494	969	-	-	-
Mov Cap-2 Maneuver	343	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	552	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	969	-	363	-	-
HCM Lane V/C Ratio	0.018	-	0.187	-	-
HCM Control Delay (s)	8.8	-	17.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	5	0	5	5	5	5	42	16	26	52	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	5	0	5	5	5	5	42	16	26	52	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	182	185	65	180	190	50	78	0	0	58	0	0
Stage 1	117	117	-	60	60	-	-	-	-	-	-	-
Stage 2	65	68	-	120	130	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	779	709	999	782	705	1018	1520	-	-	1546	-	-
Stage 1	888	799	-	951	845	-	-	-	-	-	-	-
Stage 2	946	838	-	884	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	759	694	999	765	690	1018	1520	-	-	1546	-	-
Mov Cap-2 Maneuver	759	694	-	765	690	-	-	-	-	-	-	-
Stage 1	885	785	-	948	842	-	-	-	-	-	-	-
Stage 2	933	835	-	863	775	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.6	0.6	1.8
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1520	-	-	736	802	1546	-	-
HCM Lane V/C Ratio	0.003	-	-	0.02	0.019	0.017	-	-
HCM Control Delay (s)	7.4	0	-	10	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	139	10	59	179	4	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	8	2	2	8	2	2
Mvmt Flow	139	10	59	179	4	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	139	139
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1445	-	854	909
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	819	909
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	909	-	-	1445	-
HCM Lane V/C Ratio	0.081	-	-	0.041	-
HCM Control Delay (s)	9.3	-	-	7.6	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

MOVEMENT SUMMARY

Site: SR 175 & Old River Road - Future

PM Peak Hour
Future Conditions
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB SR 175-Main Street											
3	L2	1	2.0	0.136	3.8	LOS A	0.6	16.4	0.08	0.02	25.6
8	T1	17	2.0	0.136	3.8	LOS A	0.6	16.4	0.08	0.02	24.7
18	R2	162	8.0	0.136	3.8	LOS A	0.6	16.4	0.08	0.02	23.5
Approach		180	7.4	0.136	3.8	LOS A	0.6	16.4	0.08	0.02	23.6
East: WB Lakeport-Hopland 175 Road											
1	L2	112	8.0	0.091	3.5	LOS A	0.4	10.5	0.11	0.03	27.9
6	T1	1	2.0	0.091	3.5	LOS A	0.4	10.5	0.11	0.03	28.3
16	R2	6	2.0	0.091	3.5	LOS A	0.4	10.5	0.11	0.03	27.1
Approach		119	7.6	0.091	3.5	LOS A	0.4	10.5	0.11	0.03	27.9
North: SB Old River Road											
7	L2	6	2.0	0.113	3.8	LOS A	0.5	13.1	0.27	0.14	25.9
4	T1	134	2.0	0.113	3.8	LOS A	0.5	13.1	0.27	0.14	25.0
14	R2	1	2.0	0.113	3.8	LOS A	0.5	13.1	0.27	0.14	23.8
Approach		141	2.0	0.113	3.8	LOS A	0.5	13.1	0.27	0.14	25.0
West: EB Driveway											
5	L2	6	2.0	0.007	3.4	LOS A	0.0	0.8	0.37	0.19	29.1
2	T1	1	2.0	0.007	3.4	LOS A	0.0	0.8	0.37	0.19	28.9
12	R2	1	2.0	0.007	3.4	LOS A	0.0	0.8	0.37	0.19	27.7
Approach		8	2.0	0.007	3.4	LOS A	0.0	0.8	0.37	0.19	28.9
All Vehicles		448	5.7	0.136	3.7	LOS A	0.6	16.4	0.15	0.06	25.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix H

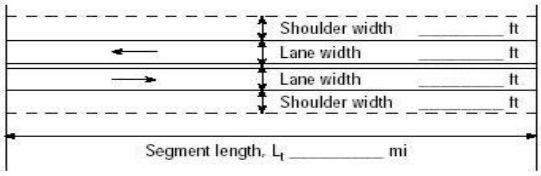
Roadway Segment Level of Service Calculations

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	SAB	Highway / Direction of Travel	US 101 Northbound
Agency or Company	W-Trans	From/To	Mountain House Road to SR 175
Date Performed	8/17/2015	Jurisdiction	Mendocino County
Analysis Time Period	Weekday PM Peak Hour	Analysis Year	Existing Conditions

Project Description: Hopland Main St Corridor EFS

Input Data



Show North Arrow

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF 1.00

No-passing zone 100%

% Trucks and Buses , P_T 10 %

% Recreational vehicles, P_R 1%

Access points *mi* 1/mi

Analysis direction vol., V_d 719veh/h

Opposing direction vol., V_o 721veh/h

Shoulder width ft 6.0

Lane Width ft 12.0

Segment Length mi 0.1

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.1	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.990	0.990
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	726	728

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	45.0 mi/h
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	0.0 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	0.3 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	1.4 mi/h	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	44.8 mi/h
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	32.1 mi/h
		Percent free flow speed, PFFS	71.6 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.990	0.990
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	726	728
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	66.0	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	27.7	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	79.8	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	D
Volume to capacity ratio, *v/c*	0.43
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	1683
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	1700
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	71.6

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	719.0
Effective width, Wv (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	3.84
Bicycle level of service score, BLOS (Eq. 15-31)	4.49
Bicycle level of service (Exhibit 15-4)	D

Notes

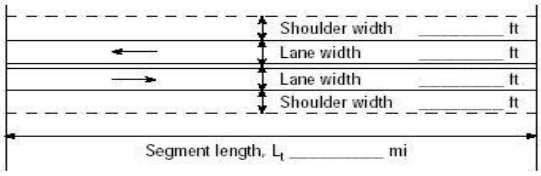
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*SAB*	Highway / Direction of Travel	*US 101 Southbound*
Agency or Company	*W-Trans*	From/To	*SR 175 to Mountain House Rd*
Date Performed	*8/17/2015*	Jurisdiction	*Mendocino County*
Analysis Time Period	*Weekday PM Peak Hour*	Analysis Year	*Existing Conditions*

Project Description: *Hopland Main St Corridor EFS*

Input Data



Analysis direction vol., V_d *721* veh/h

Opposing direction vol., V_o *719* veh/h

Shoulder width ft *6.0*

Lane Width ft *12.0*

Segment Length mi *0.1*

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *1.00*

No-passing zone *100%*

% Trucks and Buses , P_T *10* %

% Recreational vehicles, P_R *1%*

Access points *mi* *1*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*728*	*726*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS} (Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.8 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.0 mi/h*
		Percent free flow speed, PFFS	*71.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*728*	*726*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*66.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*80.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.43*
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$ (Equation 15-11 - Class III only)	*71.6*

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*721.0*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*3.84*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.49*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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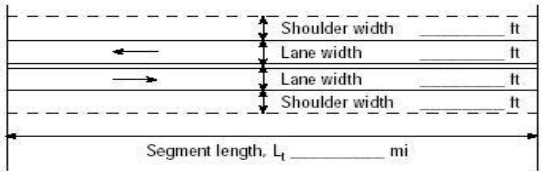
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*SAB*	Highway / Direction of Travel	*SR 175 Eastbound*
Agency or Company	*W-Trans*	From/To	*Old River to US101 e/o Tracks*
Date Performed	*8/17/2015*	Jurisdiction	*Mendocino County*
Analysis Time Period	*Weekday PM Peak Hour*	Analysis Year	*Existing Conditions*

Project Description: *Hopland Main St Corridor EFS*

Input Data



Analysis direction vol., V_d *152*veh/h
Opposing direction vol., V_o *152*veh/h
Shoulder width ft *6.0*
Lane Width ft *12.0*
Segment Length mi *0.7*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *1.00*
No-passing zone *100%*
% Trucks and Buses , P_T *7 %*
% Recreational vehicles, P_R *1%*
Access points *mi* *0*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*	*0.953*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*159*	*159*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*50.0 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*44.1 mi/h*
		Percent free flow speed, PFFS	*88.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*	*0.993*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*153*	*153*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*59.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*46.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1620*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1688*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.3*

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*152.0*
Effective width, Wv (Eq. 15-29) ft	*28.32*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*1.86*
Bicycle level of service (Exhibit 15-4)	*B*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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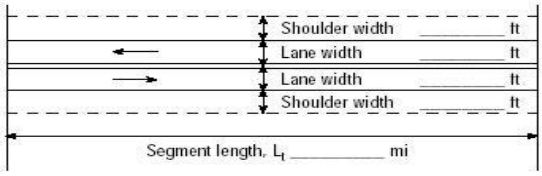
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*SAB*	Highway / Direction of Travel	*SR 175 Westbound*
Agency or Company	*W-Trans*	From/To	*Old River to US101 e/o Tracks*
Date Performed	*8/17/2015*	Jurisdiction	*Mendocino County*
Analysis Time Period	*Weekday PM Peak Hour*	Analysis Year	*Existing Conditions*

Project Description: *Hopland Main St Corridor EFS*

Input Data



Analysis direction vol., V_d *152*veh/h
Opposing direction vol., V_o *152*veh/h
Shoulder width ft *6.0*
Lane Width ft *12.0*
Segment Length mi *0.7*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *1.00*
No-passing zone *100%*
% Trucks and Buses , P_T *7 %*
% Recreational vehicles, P_R *1%*
Access points *mi* *0*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*	*0.953*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*159*	*159*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*50.0 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*44.1 mi/h*
		Percent free flow speed, PFFS	*88.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*	*0.993*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*153*	*153*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*59.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*46.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1620*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1688*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.3*

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*152.0*
Effective width, Wv (Eq. 15-29) ft	*28.32*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*1.86*
Bicycle level of service (Exhibit 15-4)	*B*

Notes

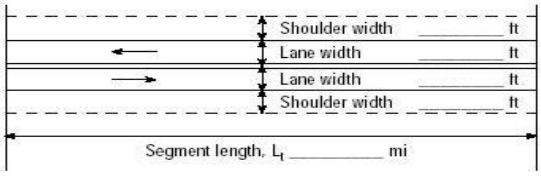
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	SAB	Highway / Direction of Travel	US 101 Northbound
Agency or Company	W-Trans	From/To	Mountain House Road to SR 175
Date Performed	8/17/2015	Jurisdiction	Mendocino County
Analysis Time Period	Weekday PM Peak Hour	Analysis Year	Future Conditions

Project Description: Hopland Main St Corridor EFS

Input Data



Analysis direction vol., V_d 935veh/h

Opposing direction vol., V_o 937veh/h

Shoulder width ft 6.0

Lane Width ft 12.0

Segment Length mi 0.1

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF 1.00

No-passing zone 100%

% Trucks and Buses , P_T 10 %

% Recreational vehicles, P_R 1%

Access points *mi* 1/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.0	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	1.000
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	935	937

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	45.0 mi/h
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	0.0 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	0.3 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	1.1 mi/h	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	44.8 mi/h
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	29.1 mi/h
		Percent free flow speed, PFFS	65.0 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.990	0.990
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	944	946
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	75.7	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	20.6	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	86.0	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	E
Volume to capacity ratio, *v/c*	0.55
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	1700
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	1700
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	65.0

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	935.0
Effective width, Wv (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	3.84
Bicycle level of service score, BLOS (Eq. 15-31)	4.62
Bicycle level of service (Exhibit 15-4)	E

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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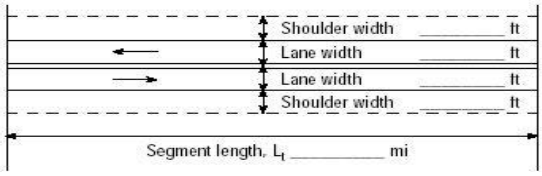
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*SAB*	Highway / Direction of Travel	*US 101 Southbound*
Agency or Company	*W-Trans*	From/To	*SR 175 to Mountain House Rd*
Date Performed	*8/17/2015*	Jurisdiction	*Mendocino County*
Analysis Time Period	*Weekday PM Peak Hour*	Analysis Year	*Future Conditions*

Project Description: *Hopland Main St Corridor EFS*

Input Data



Analysis direction vol., V_d *937*veh/h

Opposing direction vol., V_o *935*veh/h

Shoulder width ft *6.0*

Lane Width ft *12.0*

Segment Length mi *0.1*

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *1.00*

No-passing zone *100%*

% Trucks and Buses , P_T *10 %*

% Recreational vehicles, P_R *1%*

Access points *mi* *1*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*937*	*935*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.8 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.1 mi/h*
		Percent free flow speed, PFFS	*65.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*946*	*944*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*75.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*20.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*86.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.55*
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*65.0*

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*937.0*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*3.84*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.62*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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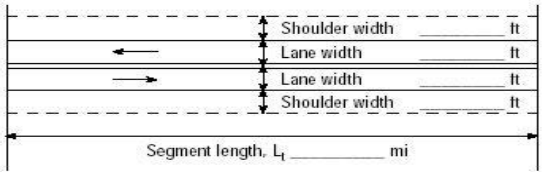
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*SAB*	Highway / Direction of Travel	*SR 175 Eastbound*
Agency or Company	*W-Trans*	From/To	*Old River to US101 e/o Tracks*
Date Performed	*8/17/2015*	Jurisdiction	*Mendocino County*
Analysis Time Period	*Weekday PM Peak Hour*	Analysis Year	*Future Conditions*

Project Description: *Hopland Main St Corridor EFS*

Input Data



Analysis direction vol., V_d *213*veh/h

Opposing direction vol., V_o *213*veh/h

Shoulder width ft *6.0*

Lane Width ft *12.0*

Segment Length mi *0.7*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *1.00*

No-passing zone *100%*

% Trucks and Buses , P_T *7 %*

% Recreational vehicles, P_R *1%*

Access points *mi* *0*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*220*	*220*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*50.0 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.7 mi/h*
		Percent free flow speed, PFFS	*85.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*	*0.993*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*214*	*214*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*23.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*64.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.13*
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1688*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*85.4*

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*213.0*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.16*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

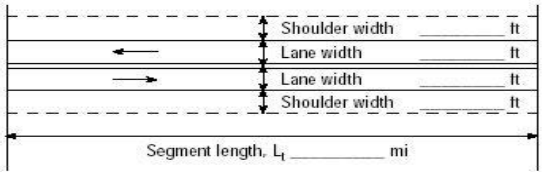
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*SAB*	Highway / Direction of Travel	*SR 175 Westbound*
Agency or Company	*W-Trans*	From/To	*Old River to US101 e/o Tracks*
Date Performed	*8/17/2015*	Jurisdiction	*Mendocino County*
Analysis Time Period	*Weekday PM Peak Hour*	Analysis Year	*Future Conditions*

Project Description: *Hopland Main St Corridor EFS*

Input Data



Analysis direction vol., V_d *213*veh/h

Opposing direction vol., V_o *213*veh/h

Shoulder width ft *6.0*
Lane Width ft *12.0*
Segment Length mi *0.7*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *1.00*
No-passing zone *100%*
% Trucks and Buses , P_T *7 %*
% Recreational vehicles, P_R *1%*
Access points *mi* *0*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*220*	*220*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*50.0 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.7 mi/h*
		Percent free flow speed, PFFS	*85.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*	*0.993*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*214*	*214*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*23.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*64.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.13*
Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1688*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*85.4*

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*213.0*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.16*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Appendix I

Traffic Signal Warrant Analysis

Signal Warrant Analysis

Warrant 3: Peak-Hour Volumes and Delay

Mendocino County

US 101 & CA-175

	Major Street	Minor Street
Street Name	US 101	CA-175
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	35	45

Population less than 10,000? Yes

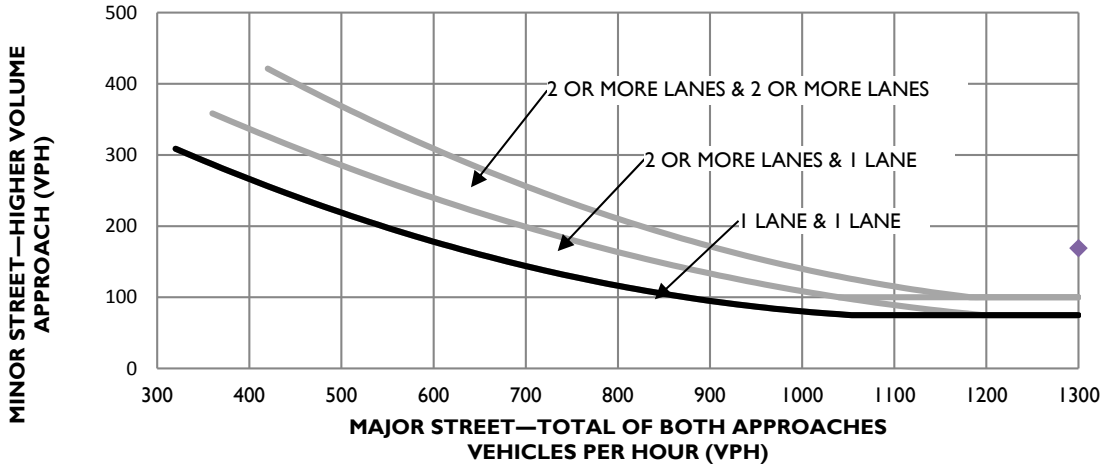
Date of Count: September 25, 2014

Scenario: PM Future

Warrant 3: Met when either Condition A or B is met	**Met**
Condition A: Met when conditions A1, A2, and A3 are met	Not Met
Condition A1	Not Met
The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach	
Condition A2	Met
The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes	
Condition A3	Met
The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches	
Condition B	Met
The plotted point falls above the curve	

Warrant 3, Peak Hour (70% Factor)

(Community Less than 10,000 Population, or Above 40 MPH on Major Street)



Appendix J

Best Practices Toolbox

TOOLBOX

Raised Medians

- Slows traffic
- Creates space between vehicles on either side
- Reduces head on collisions
- Can be used as a pedestrian refuge

1

TOOLBOX

Buffered Bike Lanes

- Provides extra space between bicyclists and vehicles
- Bicyclists are more comfortable in bike lane

2

TOOLBOX

Bike Lanes

- Improves conditions for bicyclists by giving them exclusive right of way
- Increases visibility for drivers, making it easier to see cyclists
- Promotes cycling

3

TOOLBOX

Sharrows (Shared Lane Arrows)

- Encourage drivers to leave space for cyclists where there is not enough space for a bike lane
- Advise cyclists when to "take the lane" where travel lanes are too narrow for riding side by side with vehicles
- Reduce the incidences of wrong-way cycling
- Alerts motorists of cyclists on roadway
- May be appropriate along narrow bridges

4

TOOLBOX

Roundabout

- Forces vehicles to slow down
- Improves the efficiency of the roadway
- Controls the flow of traffic

5

TOOLBOX

Shoulder with Colored Pavement

- Helps slow traffic
- Delineates shoulder from travel lanes and parking

6

TOOLBOX

Enhanced Crosswalk

- Flashing Lights (Rapid Rectangular Flashing Beacons)
- Improved signage
- Increased driver awareness

TOOLBOX

Bicycle Parking

- Short-term bicycle parking

8

TOOLBOX

Curb Extensions/Bulb-outs

- Reduces crossing distance, allowing pedestrians to cross more safely
- Provides additional visibility and protection for pedestrians, especially children
- Slows and calms traffic, particularly fast traffic turning from a major to a minor road

9

TOOLBOX

Pedestrian Refuge Island

- Allows pedestrians to cross one direction of traffic at a time
- Reduces the complexity of the crossing
- Slows and calms traffic
- Decreases delays for motorists
- Reduces the amount of collisions

10

TOOLBOX

Wide, Continuous Sidewalks

- More comfortable for pedestrians
- Easier to walk around town

11

TOOLBOX

Street Trees

- Provide shade
- Visual interest
- Slows down traffic

12

Appendix K

US 101 Cross Slope Details

TECHNICAL MEMORANDUM NO. 2

May 22, 2015

To:	Steve Weinberger, W-Trans		
Cc:	Bill Silva, GHD		
From:	Matt Wargula, GHD	Tel:	707-523-1010
Subject:	Mendocino/US 101 Hopland "Main Street" Engineered Feasibility Study	Job no.:	8411505

This technical memorandum summarizes the work performed for Subtask 5.1c – Civil Design Evaluation pertaining to grade corrections at specific cross walk locations. Two existing cross walk locations were examined:

- the cross walks at the intersection of US 101 and Center Drive; and
- the midblock crosswalk of US 101 north of SR 175 (The US 101 cross walk south of SR 175 and at SR 175 in "Old Hopland" would be similar).

These two locations are quite different from one another. Center Drive has a noticeable elevation difference between the west side and east side of the street; whereas just north of SR 175, the roadway has the more typical "normal" crown (both sides of US101 generally match in elevation).

The tools utilized to gather information included a measuring wheel, measuring tape and a 2-foot long slope indicating level. A topographic survey was not available for this work. The measurements taken to generate "typical" cross sections should only be used for planning level analysis as it is expected that variations will occur between field measured data utilizing a slope indicating level and detailed topographic survey utilized for design (which would be gathered at a later time).

<u>Cross-section at Center Drive</u>

- Sizable elevation difference of approximately 3.4 feet from the west side of US101 to the east side of US101. A straight line slope across the roadway at this location would likely exceed 5%.
- Would require reconstruction of the pavement section, as it is likely that upwards of 1-foot of pavement section would need to be removed to regrade the roadway at the crosswalks.
- May require design exception from the Caltrans HDM, as a roadway slope of 4.5% in the travel lane would likely be required. It would likely be "technically infeasible" due to existing site constraints to adjust the existing pavement grade more than 6-inches due the adjacent building conforms.
- Would require reconstruction of eastern curb and gutter based on raising flow line and reducing overall cross slope. May also require storm drain modifications, either due to storm water LID requirements or to protect areas from roadway drainage.

GHD Inc.
2235 Mercury Way Suite 150 Santa Rosa CA 95407 USA
T 1 707 523 1010 F 1 707 527 8679 E santarosa@ghd.com W www.ghd.com

Cross-section North of SR 175

- Would require reconstruction of the pavement section, as it is likely that more than 1-foot of pavement section would need to be removed to regrade the roadway at the crosswalk.
- It is feasible to meet Caltrans HDM requirements for the cross section.
- Would not require reconstruction of adjacent concrete curb, gutter and sidewalk, unless storm water LID requirements are needed.

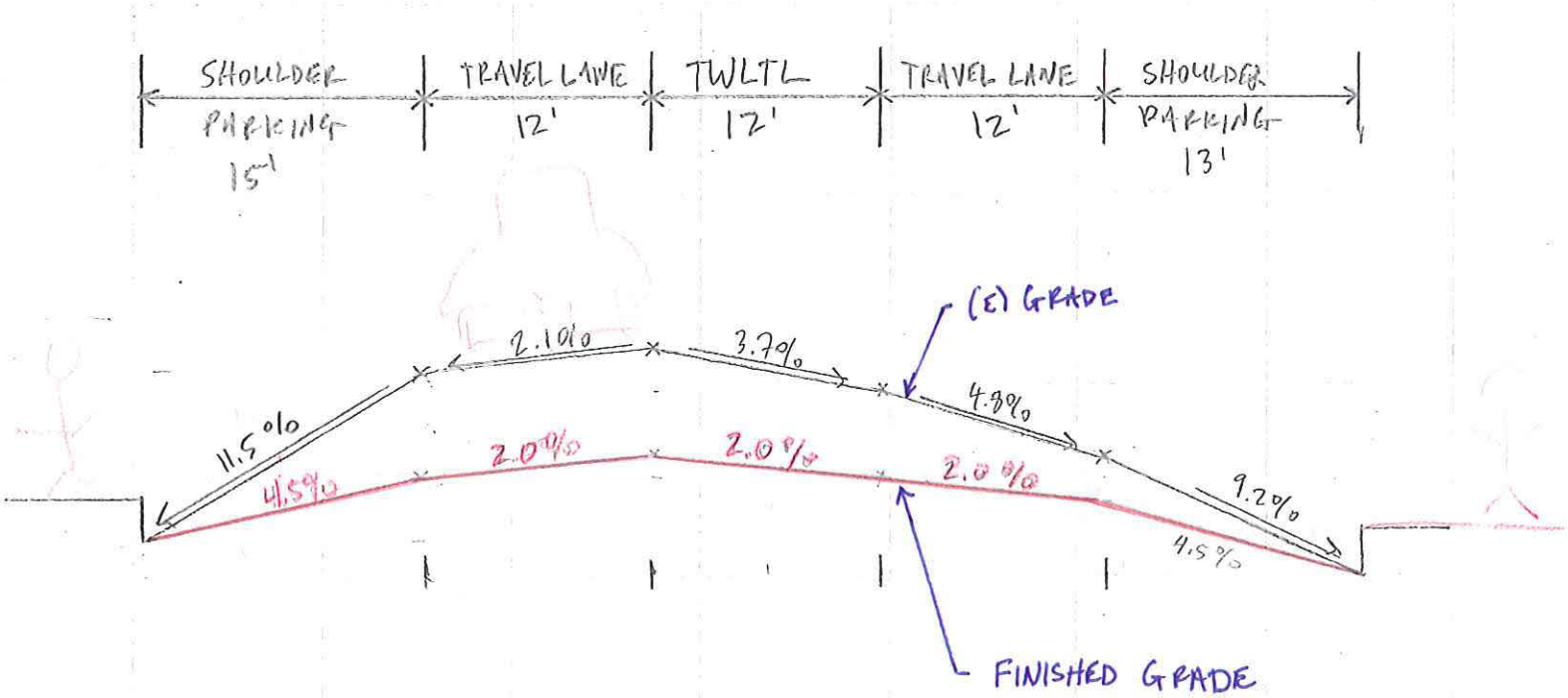
Attachments

- Figure A “Typical Section at Center Drive”
- Figure B “Typical Section at ~225’ North of SR 175

Client ..... Job Number ..... Sheet ..... of .....

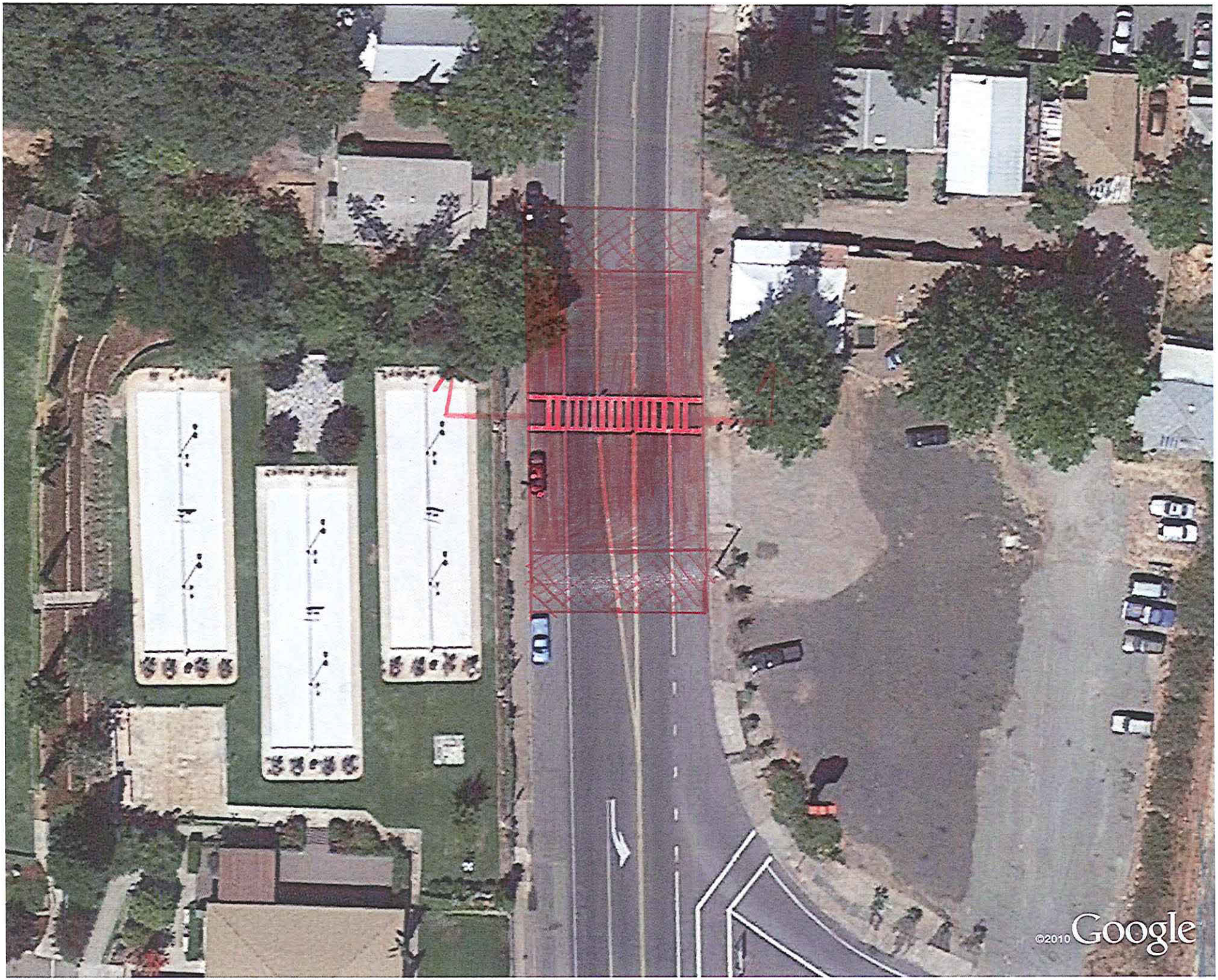
Project ..... Sheets by ..... Date .....

Subject APPROX. US101 X-SECTION @ N. of SR75 Checked by ..... Date .....



Scale 1" = 10' (HORIZONTAL)

1" = 2' (VERTICAL)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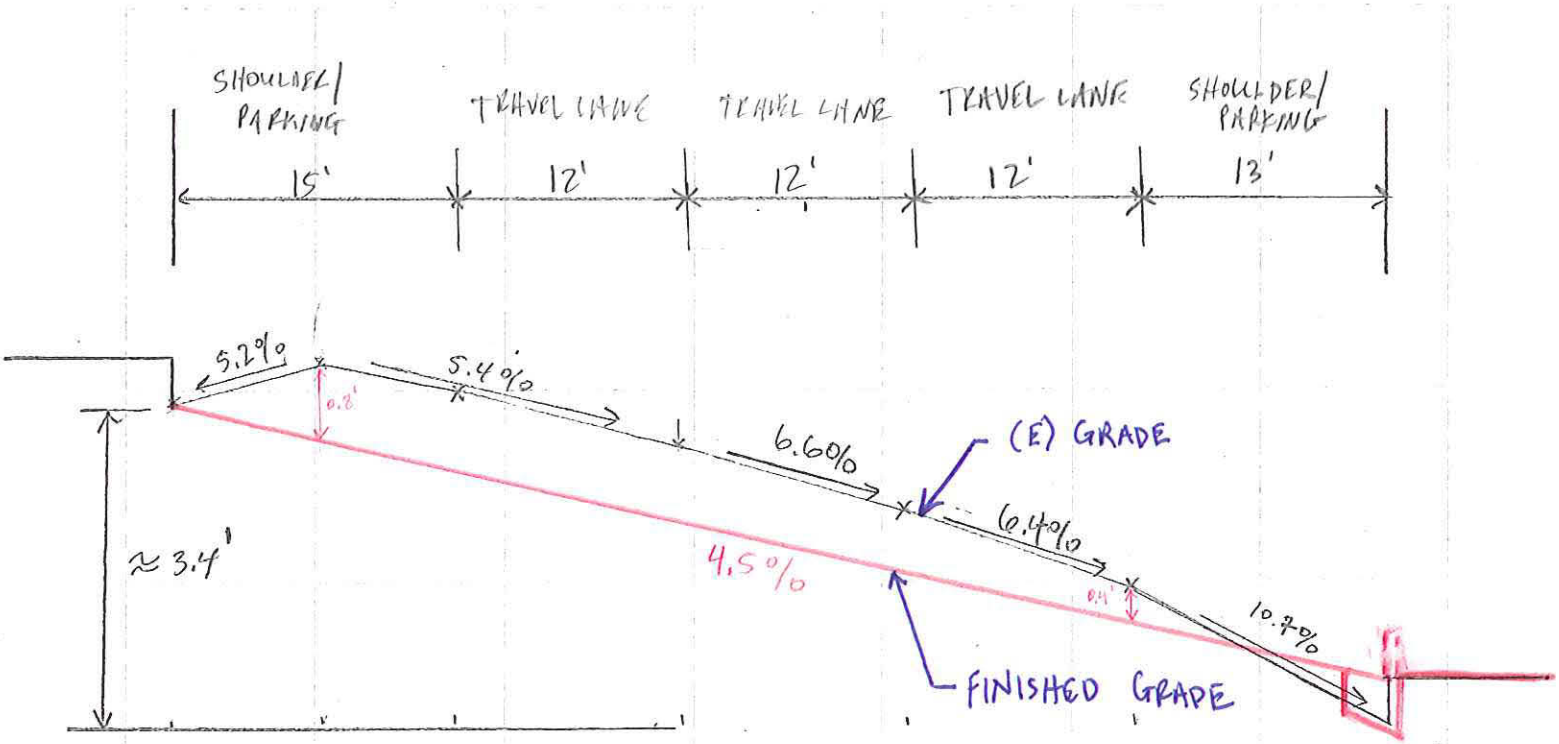
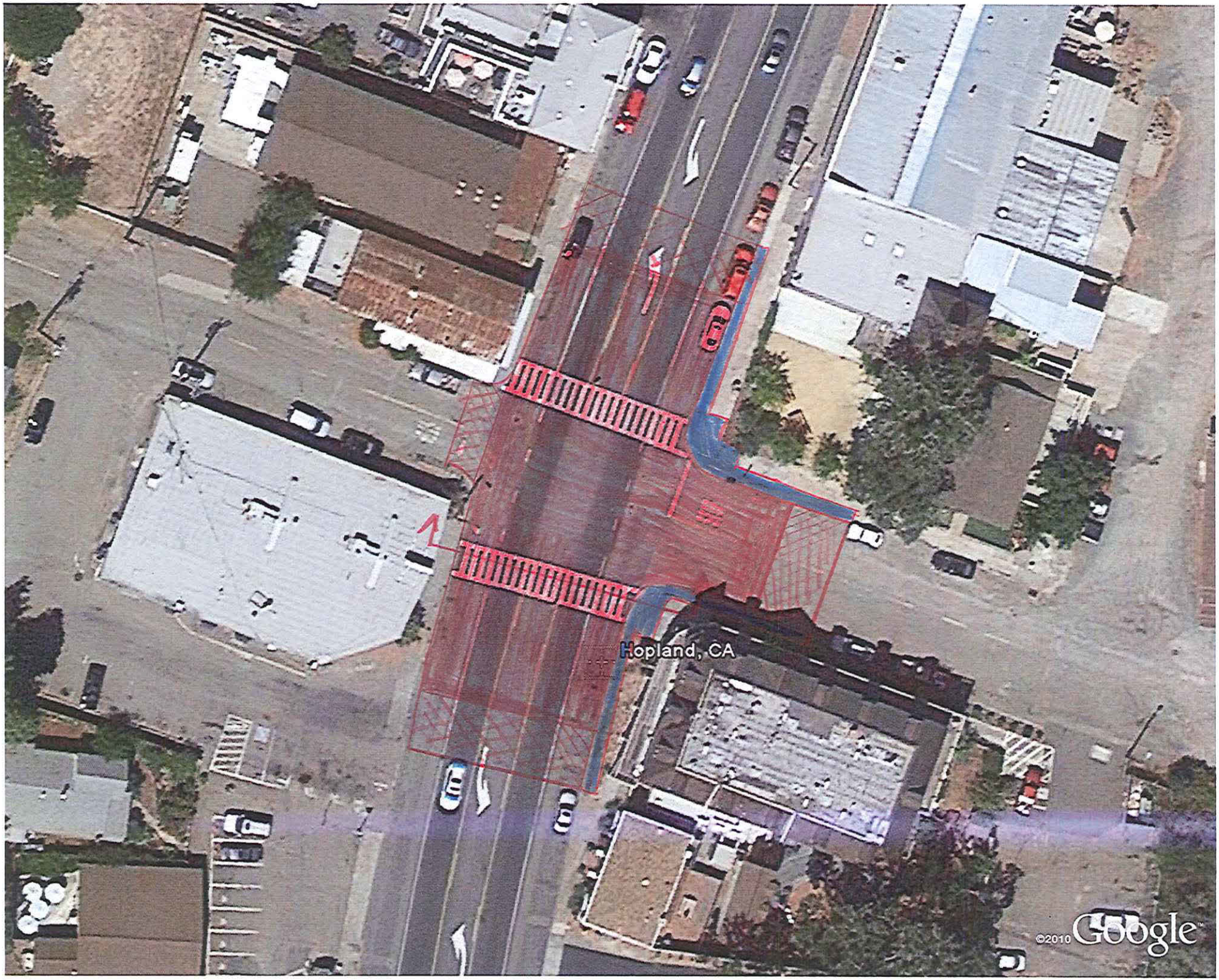
Client | Job Number | Sheet of

Project | Sheets by | Date

Subject APPROX US101 X-SECTION @ CENTER DC | Checked by | Date



$$\frac{3.4'}{64'} = 5.3\%$$


Hopland, CA
©2010 Google

Appendix L

Cost Estimates Technical Memorandum

TECHNICAL MEMORANDUM NO. 1

August 24, 2015

To:	Steve Weinberger, W-Trans		
Cc:	Bill Silva, GHD		
From:	Matt Wargula, GHD	Tel:	707-523-1010
Subject:	Mendocino/US 101 Hopland "Main Street" Engineered Feasibility Study	Job no.:	8411505

Introduction

This technical memorandum summarizes the work performed for Subtask 5.2 – Cost Estimates pertaining to development of construction cost estimates. Project development, environmental, right-of-way, permit and other costs been estimated and are discussed on page 2.

Preliminary construction costs were developed based on workshop planning documents (prepared by the W-trans Team) and discussions with the project team. Construction scope items were assumed for each design option and measurement of work quantities were approximated from available on-line tools, such as Google Earth. Topographic survey, boundary survey, geotechnical information, existing utility mapping, and other resources were not available at this stage to complete the preliminary opinion of construction cost. Based on this cursory approach, quantities of work could vary significantly, and a 35% contingency has been applied.

Caltrans District 1 was consulted in development of the construction costs and provided comments in the attached letter, dated April 29, 2015. Based on Caltrans comments received, revisions were made to the traffic control items and miscellaneous utility adjustment items. There seems to be potential for underground and/or above ground utility adjustments on this project. It is not known which underground utilities would be impacted or the exact extent of the work. Existing above ground utilities impacted are anticipated to include electrical and communications lines.

Preliminary Opinion of Probable Construction Cost

Preliminary opinion of probable construction costs were developed for project design options. This cost is based on a Class 4 (concept evaluation) estimate of probable construction cost as defined by the Association for the Advancement of Cost Engineering, International (AACE). AACE defines the "Class 4" estimate as follows:

> *Generally prepared based on limited information and subsequently have fairly wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 15% complete. Class 4 estimates are prepared for a number of purposes, such as but not limited to, detailed strategic planning, business development, project screening at more developed stages, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval or approval to proceed to the next stage. The typical accuracy range for this class estimate are -15% to -30% on the low side, and +20% to +50% on the high side, depending on the technical complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination.*

Note: Contingency (set at 35-percent) is not directly related to the stated accuracy range for a Class 4 estimate. Determination of construction cost contingency is intended to cover unforeseen aspects of construction, including changes in quantities of work, which have not been evaluated during this preliminary investigation.

The preliminary opinion of probable construction costs for design options are as follows:

A. $2,467,000 (Roundabout)
B. $419,000 (Relocated x-walk)
C. $161,000 (Colorized shoulders)
D. $242,000 (Entry features)
E. $459,000 (Sidewalk reconstruction)
F. $385,000 (New southbound left-turn lane)
G. $284,000 (Additional speed medians)
H. $1,089,000 (Bike lanes on SR 175)
I. $1,275,000 (US 101/SR 175 alternative)

The total probable construction cost of all projects is $6,781,000.

Preliminary Opinion of Probable Project Delivery Cost and Total Project Cost

Project delivery costs include preliminary engineering (PE), right-of-way (RW) and construction engineering (CE). PE includes environmental studies and permits (PA&ED), design and development of plans, specifications and estimates (PS&E) for construction. RW includes right-of-way engineering (research, boundary survey, legal descriptions, plat maps, etc.), acquisitions and utilities. CE includes construction engineering, management and inspection.

Project delivery costs for PE and CE were estimated based on the maximum percentages of the construction cost typically allowed for those phases of work (PE at 25 percent maximum and CE at 15% maximum). RW costs will vary considerably based on the need and type of acquisition required, utility relocation or other activity. Where the proposed project is contained within the existing back of sidewalk limits or edge of pavement, a minimal RW cost is assumed as existing sidewalks and pavement shoulders are assumed to be within the public right-of-way. The approach to establish RW costs included the approximate number of private parcels adjacent to each project and assumptions about the potential for RW acquisition provided with the intent of the project, including permit to enter and construct, temporary construction easement and permanent (purchase) of property.

The following Table 1 shows planning level project delivery costs and total probable cost of the projects, including construction.

Table 1: Mendocino/US 101 Hopland "Main Street" Engineered Feasibility Study Planning Level Project Delivery Cost and Total Probable Cost of the Projects

PROJECT DESCRIPTION	TOTAL CONSRUCTION COST (W/ CONT.*)	PROJECT DELIVERY COST			TOTAL PROJECT COST
		PRELIMINARY ENGINEERING (PE) (25%)	RIGHT OF WAY (RW) (Est.**)	CONSTRUCTION ENGINEERING (CE) (15%)	
A. ROUNDABOUT AT US 101 / SR 175	$ 2,467,000	$ 616,750.00	$ 150,000.00	$ 370,050.00	**$ 3,603,800**
B. RELOCATED US 101/CENTER DRIVE CROSSWALK	$ 419,000	$ 104,750.00	$ 25,000.00	$ 62,850.00	**$ 611,600**
C. COLORIZED SHOULDERS IN OLD HOPLAND	$ 161,000	$ 40,250.00	$ 25,000.00	$ 24,150.00	**$ 250,400**
D. ENTRY FEATURES / MEDIAN & TREE LINED ENTRY	$ 242,000	$ 60,500.00	$ 60,000.00	$ 36,300.00	**$ 398,800**
E. SIDEWALK RECONSTRUCTION IN HIGH PEDESTRIAN AREAS	$ 459,000	$ 114,750.00	$ 25,000.00	$ 68,850.00	**$ 667,600**
F. NEW SOUTHBOUND LEFT-TURN LANES ON US 101 INTO REAL GOODS	$ 385,000	$ 96,250.00	$ 60,000.00	$ 57,750.00	**$ 599,000**
G. ADDITIONAL SPEED REDUCTION MEDIANS ON US 101, NORTH/SOUTH OF MOUTAIN HOUSE	$ 284,000	$ 71,000.00	$ -	$ 42,600.00	**$ 397,600**
H. BIKE LANES ON SR 175 BETWEEN US 101 AND SR 175 ROUNDABOUT	$ 1,089,000	$ 272,250.00	$ 350,000.00	$ 163,350.00	**$ 1,874,600**
I. US 101 / SR 175 INTERSECTION ALTERNATIVE (REDUCED INTERSECTION SIZE)	$ 1,275,000	$ 318,750.00	$ 25,000.00	$ 191,250.00	**$ 1,810,000**
TOTAL PROJECT COST	**$ 6,781,000**	**$ 1,695,250.00**	**$ 720,000.00**	**$ 1,017,150.00**	**$ 10,213,400**

Note: *Construction cost based on Class 4 opinion of probable construction costs.

**$25,000 assumed minimum RW cost where potential for RW exists.

Attachments

- Engineer's Opinion of Probable Construction Costs.
- Caltrans Response to Comments Letter, dated April 29, 2015.

Engineer's Opinion of Probable Construction Costs

Mendocino Council of Governments
Mendocino/US 101 Hopland "Main Street" Engineered Feasibility Study

Alternative Comparison Construction Cost Estimates
August 24, 2015
ENR Cost Index April 2015 (San Francisco, CA): 11,162.57

BID ITEM	ITEM CODE		QUANTITY		UNIT PRICE	Total
		A. ROUNDABOUT AT US 101/SR 175				
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 8,000.00	$ 8,000
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 100,000.00	$ 100,000
4	120149	TEMPORARY PAVEMENT MARKING (PAINT)	250	SF	$ 3.00	$ 750
5	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	2,500	LF	$ 1.00	$ 2,500
6	120200	FLASHING BEACON (PORTABLE)	3	EA	$ 500.00	$ 1,500
7	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 20,000.00	$ 20,000
8	026322	PORTABLE LIGHTING SYSTEMS	1	LS	$ 10,000.00	$ 10,000
9	129000	TEMPORARY RAILING (TYPE K)	2,000	LF	$ 10.00	$ 20,000
10	026323	TEMPORARY ALTERNATIVE CRASH CUSHION SYSTEM	2	EA	$ 3,000.00	$ 6,000
11	130100	JOB SITE MANAGEMENT	1	LS	$ 3,000.00	$ 3,000
12	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 18,000.00	$ 18,000
13	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 14,000.00	$ 14,000
14	150742	REMOVE ROADSIDE SIGN	10	EA	$ 75.00	$ 750
15	152299	RESET MILEPOST MARKER	2	EA	$ 35.00	$ 70
16	152320	RESET ROADSIDE SIGN	2	EA	$ 195.00	$ 390
17	152390	RELOCATE ROADSIDE SIGN	2	EA	$ 250.00	$ 500
18	152XXX	MISCELANEOUS UTILITY ADJUSTMENTS	1	LS	$ 75,000.00	$ 75,000
19	152439	ADJUST FRAME AND COVER TO GRADE	20	EA	$ 675.00	$ 13,500
20	152440	ADJUST MANHOLE TO GRADE	10	EA	$ 875.00	$ 8,750
21	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	5,000	SY	$ 3.50	$ 17,500
22	160102	CLEARING AND GRUBBING	1	LS	$ 10,000.00	$ 10,000
23	153123	REMOVE CONCRETE	10,000	SF	$ 8.50	$ 85,000
24	190101	ROADWAY EXCAVATION	3,000	CY	$ 30.00	$ 90,000
25	208XXX	IRRIGATION AND PLANTING	1	LS	$ 85,000.00	$ 85,000
26	204099	PLANT ESTABLISHMENT WORK	1	LS	$ 10,000.00	$ 10,000
27	260203	CLASS 2 AGGREGATE BASE (CY)	1,745	CY	$ 45.00	$ 78,525
28	390132	HOT MIX ASPHALT (TYPE A)	1,500	TON	$ 110.00	$ 165,000
29	394076	PLACE HOT MIX ASPHALT DIKE (TYPE E)	476	LF	$ 7.50	$ 3,570
30	394090	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	700	SF	$ 15.00	$ 10,500
31	397005	TACK COAT	1	TON	$ 2,500.00	$ 2,500
32	401050	JOINTED PLAIN CONCRETE PAVEMENT	213	CY	$ 355.00	$ 75,615
33	56XXXX	ENTRY SIGNS/ARTWORK	1	LS	$ 50,000.00	$ 50,000
34	566011	ROADSIDE SIGN - ONE POST	25	EA	$ 500.00	$ 12,500
35	566012	ROADSIDE SIGN - TWO POST	1	EA	$ 750.00	$ 750
36	7XXXX	STORM DRAIN MODIFICATIONS	1	LS	$ 150,000.00	$ 150,000
37	730020	MINOR CONCRETE (CURB AND GUTTER)	1,536	LF	$ 52.00	$ 79,872
38	730070	DETECTABLE WARNING SURFACE	90	SF	$ 27.00	$ 2,430
39	731511	MINOR CONCRETE (ISLAND PAVING)	6,907	SF	$ 15.00	$ 103,605
40	731521	MINOR CONCRETE (DRIVEWAY)	1,770	SF	$ 15.00	$ 26,550
41	731521	MINOR CONCRETE (SIDEWALK)	8,717	SF	$ 12.00	$ 104,604
42	731623	MINOR CONCRETE (CURB RAMP)	6	EA	$ 5,500.00	$ 33,000
43	750001	MISCELLANEOUS IRON AND STEEL	3,000	LB	$ 1.00	$ 3,000
44	820107	DELINEATOR (CLASS 1)	10	EA	$ 80.00	$ 800
45	820130	OBJECT MARKER	10	EA	$ 100.00	$ 1,000
46	840515	THERMOPLASTIC PAVEMENT MARKING	1,500	SF	$ 5.50	$ 8,250
47	840560	THERMOPLASTIC TRAFFIC STRIPE	12,000	LF	$ 0.40	$ 4,800
48	850111	PAVEMENT MARKER (RETROREFLECTIVE)	550	EA	$ 7.00	$ 3,850
49	860401	LIGHTING	1	LS	$ 100,000.00	$ 100,000
50	860415	LIGHTING (STAGE CONSTRUCTION)	1	LS	$ 20,000.00	$ 20,000
51	026328	SOLAR FLASHING BEACON SYSTEM	1	LS	$ 20,000.00	$ 20,000
52	999990	MOBILIZATION	1	LS	$ 164,564.00	$ 164,564
					A. ROUNDABOUT SUBTOTAL (ROUNDED)	$ 1,827,000
					35% CONTINGENCY	$ 639,450
					A. ROUNDABOUT TOTAL (ROUNDED)	**$ 2,467,000**
		B. RELOCATED US101/CENTER DRIVE CROSSWALK WITH CURB EXTENSIONS AND REGRADE				
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 8,000.00	$ 8,000
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 12,000.00	$ 12,000
4	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	300	LF	$ 1.00	$ 300
5	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 2,500.00	$ 2,500
6	130100	JOB SITE MANAGEMENT	1	LS	$ 500.00	$ 500
7	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 1,500.00	$ 1,500
8	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 1,500.00	$ 1,500
9	150742	REMOVE ROADSIDE SIGN	2	EA	$ 75.00	$ 150
10	152390	RELOCATE ROADSIDE SIGN	2	EA	$ 350.00	$ 700
11	152XXX	MISCELANEOUS UTILITY ADJUSTMENTS	1	LS	$ 50,000.00	$ 50,000
12	152439	ADJUST FRAME AND COVER TO GRADE	8	EA	$ 675.00	$ 5,400
13	152440	ADJUST MANHOLE TO GRADE	2	EA	$ 875.00	$ 1,750
14	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	1,000	SY	$ 3.50	$ 3,500
15	153123	REMOVE CONCRETE	3,000	SF	$ 8.50	$ 25,500
16	190101	ROADWAY EXCAVATION	500	CY	$ 30.00	$ 15,000
17	260203	CLASS 2 AGGREGATE BASE (CY)	308	CY	$ 45.00	$ 13,867
18	390132	HOT MIX ASPHALT (TYPE A)	322	TON	$ 150.00	$ 48,360
19	397005	TACK COAT	1	TON	$ 2,500.00	$ 1,250
20	566011	ROADSIDE SIGN - ONE POST	2	EA	$ 500.00	$ 1,000
21	730020	MINOR CONCRETE (CURB AND GUTTER)	240	LF	$ 52.00	$ 12,480
22	730070	DETECTABLE WARNING SURFACE	60	SF	$ 27.00	$ 1,620
23	731521	MINOR CONCRETE (SIDEWALK)	1,600	SF	$ 12.00	$ 19,200
24	731623	MINOR CONCRETE (CURB RAMP)	8	EA	$ 5,500.00	$ 44,000
25	840515	THERMOPLASTIC PAVEMENT MARKING	640	SF	$ 5.50	$ 3,520
26	840560	THERMOPLASTIC TRAFFIC STRIPE	780	LF	$ 0.40	$ 312
27	850111	PAVEMENT MARKER (RETROREFLECTIVE)	100	EA	$ 7.00	$ 700
28	999990	MOBILIZATION	1	LS	$ 33,133.00	$ 33,133
					B. RELOCATED X-WALK SUBTOTAL (ROUNDED)	$ 310,000
					35% CONTINGENCY	$ 108,500
					B. RELOCATED X-WALK TOTAL (ROUNDED)	**$ 419,000**

BID ITEM	ITEM CODE		QUANTITY		UNIT PRICE	Total
		C. COLORIZED SHOULDERS IN OLD HOPLAND				
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 700.00	$ 700
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 2,500.00	$ 2,500
4	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 2,500.00	$ 2,500
5	130100	JOB SITE MANAGEMENT	1	LS	$ 500.00	$ 500
6	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 1,500.00	$ 1,500
7	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	978	SY	$ 3.50	$ 3,422
8	390132	HOT MIX ASPHALT (TYPE A) (STAMPED)	116	TON	$ 200.00	$ 23,188
9	840515	COLORIZED SHOULDER	8,800	SF	$ 7.50	$ 66,000
10	840560	THERMOPLASTIC TRAFFIC STRIPE	2,200	LF	$ 0.40	$ 880
11	999990	MOBILIZATION	1	LS	$ 15,404.00	$ 15,404
			C. COLORIZED SHOULDERS SUBTOTAL (ROUNDED)			$ 119,000
					35% CONTINGENCY	$ 41,650
			C. COLORIZED SHOULDERS TOTAL (ROUNDED)			**$ 161,000**
		D. ENTRY FEATURES / MEDIAN & TREE LINED ENTRY				
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 4,500.00	$ 4,500
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 15,000.00	$ 15,000
4	120149	TEMPORARY PAVEMENT MARKING (PAINT)	100	SF	$ 3.00	$ 300
5	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	420	LF	$ 1.00	$ 420
6	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 3,500.00	$ 3,500
7	130100	JOB SITE MANAGEMENT	1	LS	$ 1,500.00	$ 1,500
8	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 7,000.00	$ 7,000
9	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 3,000.00	$ 3,000
10	160102	CLEARING AND GRUBBING	1	LS	$ 2,000.00	$ 2,000
11	153123	REMOVE CONCRETE	200	SF	$ 8.50	$ 1,700
12	190101	ROADWAY EXCAVATION	500	CY	$ 30.00	$ 15,000
13	208XXX	IRRIGATION AND PLANTING	1	LS	$ 45,000.00	$ 45,000
14	204099	PLANT ESTABLISHMENT WORK	1	LS	$ 10,000.00	$ 10,000
15	566011	ROADSIDE SIGN - ONE POST	2	EA	$ 500.00	$ 1,000
16	566012	ROADSIDE SIGN - TWO POST	3	EA	$ 5,500.00	$ 16,500
17	730020	MINOR CONCRETE (CURB AND GUTTER)	144	LF	$ 52.00	$ 7,488
18	731511	MINOR CONCRETE (STAMPED CONCRETE)	720	SF	$ 20.00	$ 14,400
19	840515	THERMOPLASTIC PAVEMENT MARKING	1,500	SF	$ 5.50	$ 8,250
20	840560	THERMOPLASTIC TRAFFIC STRIPE	1,000	LF	$ 0.40	$ 400
21	850111	PAVEMENT MARKER (RETROREFLECTIVE)	100	EA	$ 7.00	$ 700
22	999990	MOBILIZATION	1	LS	$ 19,099.00	$ 19,099
			D. ENTRY FEATURES SUBTOTAL (ROUNDED)			$ 179,000
					35% CONTINGENCY	$ 62,650
			D. ENTRY FEATURES TOTAL (ROUNDED)			**$ 242,000**
		E. SIDEWALK RECONSTRUCTION IN HIGH PEDESTRIAN AREAS				
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 4,000.00	$ 4,000
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 7,000.00	$ 7,000
4	130100	JOB SITE MANAGEMENT	1	LS	$ 500.00	$ 500
5	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 1,500.00	$ 1,500
6	150742	REMOVE ROADSIDE SIGN	5	EA	$ 75.00	$ 375
7	152390	RELOCATE ROADSIDE SIGN	5	EA	$ 350.00	$ 1,750
8	152XXX	MISCELANEOUS UTILITY ADJUSTMENTS	1	LS	$ 25,000.00	$ 25,000
9	153123	REMOVE CONCRETE	5,200	SF	$ 8.50	$ 44,200
10	190101	ROADWAY EXCAVATION	500	CY	$ 30.00	$ 15,000
11	260203	CLASS 2 AGGREGATE BASE (CY)	87	CY	$ 45.00	$ 3,933
12	390132	HOT MIX ASPHALT (TYPE A)	78	TON	$ 150.00	$ 11,625
13	397005	TACK COAT	1	TON	$ 2,500.00	$ 1,250
14	566011	ROADSIDE SIGN - ONE POST	5	EA	$ 500.00	$ 2,500
15	730020	MINOR CONCRETE (CURB AND GUTTER)	1,000	LF	$ 52.00	$ 52,000
16	731521	MINOR CONCRETE (DRIVEWAY)	880	SF	$ 15.00	$ 13,200
17	731521	MINOR CONCRETE (SIDEWALK)	8,000	SF	$ 12.00	$ 96,000
18	731623	MINOR CONCRETE (CURB RAMP)	4	EA	$ 5,500.00	$ 22,000
19	999990	MOBILIZATION	1	LS	$ 36,400.00	$ 36,400
			E. SIDEWALK RECONSTRUCTION SUBTOTAL (ROUNDED)			$ 340,000
					35% CONTINGENCY	$ 119,000
			E. RELOCATED X-WALK TOTAL (ROUNDED)			**$ 459,000**
		F. NEW SOUTHBOUND LEFT-TURN LANES ON US 101 INTO REAL GOODS				
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 3,000.00	$ 3,000
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 15,000.00	$ 15,000
4	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	1,000	LF	$ 1.00	$ 1,000
5	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 5,000.00	$ 5,000
6	129000	TEMPORARY RAILING (TYPE K)	500	LF	$ 10.00	$ 5,000
7	026323	TEMPORARY ALTERNATIVE CRASH CUSHION SYSTEM	2	EA	$ 3,000.00	$ 6,000
8	130100	JOB SITE MANAGEMENT	1	LS	$ 1,500.00	$ 1,500
9	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 8,000.00	$ 8,000
10	150661	REMOVE GUARDRAIL	100	LF	$ 14.00	$ 1,400
11	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 1,500.00	$ 1,500
12	152XXX	MISCELANEOUS UTILITY ADJUSTMENTS	1	LS	$ 25,000.00	$ 25,000
13	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	1,000	SY	$ 3.50	$ 3,500
14	160102	CLEARING AND GRUBBING	1	LS	$ 8,000.00	$ 8,000
15	190101	ROADWAY EXCAVATION	350	CY	$ 30.00	$ 10,500
16	208XXX	IRRIGATION AND PLANTING	1	LS	$ 10,000.00	$ 10,000
17	204099	PLANT ESTABLISHMENT WORK	1	LS	$ 5,000.00	$ 5,000
18	260203	CLASS 2 AGGREGATE BASE (CY)	1,130	CY	$ 45.00	$ 50,833
19	390132	HOT MIX ASPHALT (TYPE A)	478	TON	$ 150.00	$ 71,625
20	394077	HOT MIX ASPHALT DIKE (TYPE F)	100	LF	$ 45.00	$ 4,500
21	397005	TACK COAT	1	TON	$ 2,500.00	$ 2,500
22	820107	DELINEATOR (CLASS 1)	4	EA	$ 80.00	$ 320
23	832001	METAL BEAM GUARD RAILING	100	LF	$ 25.00	$ 2,500
24	839565	TERMINAL SYSTEM (TYPE SRT)	2	EA	$ 3,800.00	$ 7,600
25	840515	THERMOPLASTIC PAVEMENT MARKING	200	SF	$ 5.50	$ 1,100
26	840560	THERMOPLASTIC TRAFFIC STRIPE	1,000	LF	$ 1.75	$ 1,750
27	850111	PAVEMENT MARKER (RETROREFLECTIVE)	75	EA	$ 7.00	$ 525
28	999990	MOBILIZATION	1	LS	$ 30,498.00	$ 30,498
			F. SOUTHBOUND LEFT TURN SUBTOTAL (ROUNDED)			$ 285,000
					35% CONTINGENCY	$ 99,750
			F. SOUTHBOUND LEFT TURN TOTAL (ROUNDED)			**$ 385,000**

BID ITEM	ITEM CODE		QUANTITY		UNIT PRICE	Total
G. ADDITIONAL SPEED REDUCTION MEDIANS ON US 101, NORTH/SOUTH OF MOUTAIN HOUSE						
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 4,500.00	$ 4,500
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 12,000.00	$ 12,000
4	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 3,500.00	$ 3,500
5	130100	JOB SITE MANAGEMENT	1	LS	$ 1,500.00	$ 1,500
6	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 1,500.00	$ 1,500
7	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 3,000.00	$ 3,000
8	153123	REMOVE CONCRETE/HMA PAVING	4,000	SF	$ 8.50	$ 34,000
9	208XXX	IRRIGATION AND PLANTING	1	LS	$ 10,000.00	$ 10,000
10	204099	PLANT ESTABLISHMENT WORK	1	LS	$ 5,000.00	$ 5,000
11	566011	ROADSIDE SIGN - ONE POST	10	EA	$ 500.00	$ 5,000
12	730020	MINOR CONCRETE (CURB AND GUTTER)	500	LF	$ 52.00	$ 26,000
13	731511	MINOR CONCRETE (STAMPED CONCRETE)	4,000	SF	$ 20.00	$ 80,000
14	999990	MOBILIZATION	1	LS	$ 22,500.00	$ 22,500
		G. SPEED REDUCTION MEDIANS SUBTOTAL (ROUNDED)				$ 210,000
					35% CONTINGENCY	$ 73,500
		G. SPEED REDUCTION MEDIANS TOTAL (ROUNDED)				**$ 284,000**
H. BIKE LANES ON SR 175 BETWEEN US 101 AND SR 175 ROUNDABOUT						
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 5,000.00	$ 5,000
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 15,000.00	$ 15,000
4	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	1,000	LF	$ 1.00	$ 1,000
5	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 5,000.00	$ 5,000
6	129000	TEMPORARY RAILING (TYPE K)	5,000	LF	$ 10.00	$ 50,000
7	026323	TEMPORARY ALTERNATIVE CRASH CUSHION SYSTEM	6	EA	$ 3,000.00	$ 18,000
8	130100	JOB SITE MANAGEMENT	1	LS	$ 5,000.00	$ 5,000
9	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 15,000.00	$ 15,000
10	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 15,000.00	$ 15,000
11	152XXX	MISCELANEOUS UTILITY ADJUSTMENTS	1	LS	$ 50,000.00	$ 50,000
12	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	7,511	SY	$ 3.50	$ 26,289
13	160102	CLEARING AND GRUBBING	1	LS	$ 25,000.00	$ 25,000
14	190101	ROADWAY EXCAVATION	1,156	CY	$ 35.00	$ 40,444
15	208XXX	IRRIGATION AND PLANTING	1	LS	$ 40,000.00	$ 40,000
16	204099	PLANT ESTABLISHMENT WORK	1	LS	$ 10,000.00	$ 10,000
17	260203	CLASS 2 AGGREGATE BASE (CY)	770	CY	$ 45.00	$ 34,667
18	390132	HOT MIX ASPHALT (TYPE A)	1,612	TON	$ 150.00	$ 241,800
19	397005	TACK COAT	1	TON	$ 2,500.00	$ 2,500
20	566011	ROADSIDE SIGN - ONE POST	15	EA	$ 500.00	$ 7,500
21	840515	THERMOPLASTIC PAVEMENT MARKING	1,500	SF	$ 5.50	$ 8,250
22	840560	THERMOPLASTIC TRAFFIC STRIPE	20,000	LF	$ 1.75	$ 35,000
23	86XXXX	PEDESTRIAN/BICYCLE ACTIVATED BEACON	1	LS	$ 75,000.00	$ 75,000
24	999990	MOBILIZATION	1	LS	$ 78,234.00	$ 78,234
					H. BIKE LANES SUBTOTAL (ROUNDED)	$ 806,000
					35% CONTINGENCY	$ 282,100
					H. BIKE LANES TOTAL (ROUNDED)	**$ 1,089,000**
I. US 101 / SR 175 INTERSECTION ALTERNATIVE (REDUCED INTERSECTION SIZE)						
1	070030	LEAD COMPLIANCE PLAN	1	LS	$ 1,500.00	$ 1,500
2	120090	CONSTRUCTION AREA SIGNS	1	LS	$ 8,000.00	$ 8,000
3	120100	TRAFFIC CONTROL SYSTEMS	1	LS	$ 25,000.00	$ 25,000
4	120149	TEMPORARY PAVEMENT MARKING (PAINT)	250	SF	$ 3.00	$ 750
5	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	2,500	LF	$ 1.00	$ 2,500
6	128652	PORTABLE CHANGEABLE MESSAGE SIGN	1	LS	$ 8,000.00	$ 8,000
7	130100	JOB SITE MANAGEMENT	1	LS	$ 3,500.00	$ 3,500
8	130300-130900	STORM WATER POLLUTION PREVENTION CONTROL	1	LS	$ 12,000.00	$ 12,000
9	1507XX	REMOVE THERMO/PAINTED TRAFFIC STRIPE/MARKERS	1	LS	$ 7,000.00	$ 7,000
10	152320	RESET ROADSIDE SIGN	2	EA	$ 195.00	$ 390
11	152390	RELOCATE ROADSIDE SIGN	2	EA	$ 250.00	$ 500
12	152XXX	MISCELANEOUS UTILITY ADJUSTMENTS	1	LS	$ 50,000.00	$ 50,000
13	152439	ADJUST FRAME AND COVER TO GRADE	20	EA	$ 675.00	$ 13,500
14	152440	ADJUST MANHOLE TO GRADE	10	EA	$ 875.00	$ 8,750
15	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	2,273	SY	$ 3.50	$ 7,957
16	153123	REMOVE CONCRETE/HMA PAVING	17,600	SF	$ 8.50	$ 149,600
17	190101	ROADWAY EXCAVATION	978	CY	$ 30.00	$ 29,333
18	260203	CLASS 2 AGGREGATE BASE (CY)	652	CY	$ 45.00	$ 29,333
19	390132	HOT MIX ASPHALT (TYPE A)	1,431	TON	$ 115.00	$ 164,584
20	397005	TACK COAT	1	TON	$ 2,500.00	$ 2,500
21	566011	ROADSIDE SIGN - ONE POST	10	EA	$ 500.00	$ 5,000
22	566012	ROADSIDE SIGN - TWO POST	1	EA	$ 750.00	$ 750
23	730020	MINOR CONCRETE (CURB AND GUTTER)	1,098	LF	$ 52.00	$ 57,096
24	731511	MINOR CONCRETE (STAMPED CONCRETE)	2,715	SF	$ 20.00	$ 54,300
25	731521	MINOR CONCRETE (DRIVEWAY)	1,770	SF	$ 15.00	$ 26,550
26	731521	MINOR CONCRETE (SIDEWALK)	9,440	SF	$ 12.00	$ 113,280
27	731623	MINOR CONCRETE (CURB RAMP)	8	EA	$ 5,500.00	$ 44,000
28	840515	THERMOPLASTIC PAVEMENT MARKING	1,600	SF	$ 5.50	$ 8,800
29	840560	THERMOPLASTIC TRAFFIC STRIPE	10,000	LF	$ 0.40	$ 4,000
30	850111	PAVEMENT MARKER (RETROREFLECTIVE)	550	EA	$ 7.00	$ 3,850
31	999990	MOBILIZATION	1	LS	$ 101,079.00	$ 101,079
		I. US 101 / SR 175 INTERSECTION ALT SUBTOTAL (ROUNDED)				$ 944,000
					35% CONTINGENCY	$ 330,400
		I. US 101 / SR 175 INTERSECTION ALT SUBTOTAL (ROUNDED)				**$ 1,275,000**

			TOTAL PROJECT LIST SUBTOTAL (ROUNDED)			$ 5,020,000
					35% CONTINGENCY	$ 1,757,000
					TOTAL PROJECT LIST TOTAL (ROUNDED)	**$ 6,781,000**

DEPARTMENT OF TRANSPORTATION
DISTRICT 1, P. O. BOX 3700
EUREKA, CA 95502-3700
PHONE (707) 441-4540
FAX (707) 441-5869
TTY 711

Serious drought.
Help Save Water!

April 29, 2015

Steve Weinberger
Principal
W-Trans, Inc.
490 Mendocino Ave., Suite 201
Santa Rosa, CA 95401

Hopland EFS
US 101/SR 175
SPR 13/14

Dear Mr. Weinberger,

Thank you for the opportunity to comment on the draft *Engineer's Opinion of Probable Construction Costs* (April 7, 2015, GHD). The draft spreadsheet is a component of the "Mendocino/US 101 Hopland Main Street Engineered Feasibility Study" planning document. The Hopland EFS will be the product of a 2013/14 State Planning and Research (SPR) grant. The project area covers both US 101 through the community of Hopland and SR 175 through Old Hopland. The plan identifies several proposed treatments which have been vetted through the community outreach process. Here is a list of those proposed treatments and their associated costs in draft form.

Please consider the following comments as the draft spreadsheet moves forward:

- The estimate for *Traffic Control Systems* for the proposed roundabout at US 101/SR 175 is low (Item Code #120100). As a comparison, the traffic control for the constructed Old Hopland roundabout on SR 175 was $75,042.00 in 2008. Also, Caltrans typically requires two portable changeable message signs (Item Code #128652) as well as two portable lighting systems (Item Code #026322) during traffic control.

- The *Irrigation and Planting* and *Plant Establishment* Work line items may need to be reconsidered unless the project intends to establish a maintenance agreement with Mendocino County. In response to Governor Brown's mandatory water reduction press release, Caltrans has issued a statewide news release in April 2015 detailing the Department's effort to reduce water usage, which includes dramatic changes to its current and future irrigation practices.

- Have potential utility replacement areas been identified in the plan? Is this accounted for in the *Sidewalk Reconstruction in High Pedestrian Areas* section? Will the utility companies do the *Miscellaneous Utility Adjustments* themselves ($50,000)?

If you have any questions regarding the comments outlined in this letter or need further

assistance, please contact me at (707) 441-4540 or tatiana.ahlstrand@dot.ca.gov.

Sincerely,

Tatiana Ahlstrand
Associate Transportation Planner
District 1 Office of Community Planning

cc: Matt Wargula, GHD

Appendix M

Environmental Review

Memorandum

June 26, 2015

To	Steve Weinberger, PE, PTOE Principal Whitlock & Weinberger Transportation, Inc. (W-Trans)		
From	Katherine Ross Kristine Gaspar GHD Inc.	Tel	(707) 523-1010
Subject	Hopland Main Street Corridor Project – DRAFT Environmental Analysis		

Summary

The purpose of this memorandum is to provide preliminary environmental existing conditions and potential impacts related to various environmental resources identified under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) for the Hopland Main Street Corridor project (Plan). As identified in further detail below, there could be environmental impacts associated with the following resource sections: Historical/Cultural/Paleontological Resources; Hydrology and Floodplains; Water Quality and Stormwater Runoff; Geology and Soils; Hazardous Waste/Materials; Air Quality and Climate Change; Noise and Vibration; and Biological Resources.

Project Understanding

GHD's understanding of the project is based on the *Hopland Main Street Corridor Engineered Feasibility Study* (W-Trans 2015). The purpose of the plan is to provide a set of transportation improvements that are feasible and meet the needs of a complete street environment. Included in the plan are segments of US 101 and SR 175 in Central Hopland and Old Hopland, respectively (shown in Figure 1 of the Feasibility Study). The objective of the Plan is to improve safety, enhance beauty, increase sense of community and neighborhood health, maintain historic town character, and provide more opportunities and connection to recreation. The Plan does not include improvements that would increase capacity of the transportation network. In general, the proposed Plan improvements include modifications to the existing infrastructure such as reconfiguring streets, crosswalks, sidewalks, and curbs, and installation of street furniture, lighting, and landscaping. The only new infrastructure identified in the plan would be a multi-use trail along the NCRA rail line and three bicycle/pedestrian bridges over the Russian River and Dooley Creek. Some of the proposed improvements have identified alternatives. The following analysis considers the plan's proposed improvements and alternatives.

Preliminary Analysis of CEQA/NEPA Issues

Land Use

The project is located within the unincorporated area of Hopland in Mendocino County. The study area is surrounded by various land uses including residential, commercial, and agricultural (Mendocino County 2015). The proposed plan includes improvements to the existing transportation infrastructure, and some additions to the transportation network. It does not involve any changes to land use.

Due to the nature of the project, it would not permanently divide an established community. It is anticipated that the project would be consistent with the applicable land use plans, policies, and/or regulations that govern the study area.

Visual/Aesthetics

The study area is generally flat and located near urban, residential, and agricultural land uses. The Mendocino County General Plan does not designate any scenic vistas in the vicinity of the study area (Mendocino County 2009) and there are no officially designated state scenic highways in Mendocino County (Caltrans 2015).

The project would consist of at-grade and subsurface improvements to existing infrastructure, with the exception of the lighting enhancements and the pedestrian bridges. It would not include the construction of new structures that would obstruct existing vistas or damage scenic resources or the visual character of the area. In fact, one of the objectives is to enhance the beauty of the plan area, including planting new trees, landscaping, and street furniture. Implementation of the pedestrian bridges would be adjacent to the existing vehicular bridges, and is anticipated to be within scale and context of the existing character of the area.

Lighting along US 101 is proposed as part of the project, which would create a new source of light and/or glare in the area. Therefore, appropriate design measures should be considered to minimize lighting and glare impacts.

Historic/Cultural Resources/Paleontological Resources

Existing Conditions

The study area contains one recorded archaeological resource: the ethnographic village of *Cane'l* (*Shanel, Se-nel,* or *Sane'l*), also known as P-23-000800 (CA-MEN-865/H). In addition, the State Office of Historic Preservation Historic Property Directory (OHP HPD) (which includes listings of the California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and the National Register of Historic Places) lists one recorded building adjacent to the project site: 13401 SR 101, the Thatcher Hotel (Tax Certification No. 537.9-23-0002). This building has been determined eligible for listing on the National Register of Historic Places and listed on the California Register of Historical Resources. The Caltrans Bridge Inventory includes the US Highway 101 over Feliz Creek Bridge (10 0003) and the State Route 175 over Russian River Bridge (10 0045), and considers both to be not eligible for the

National Register of Historic Places. In addition to these inventories, the Northwest Information Center base maps show the Northwestern Pacific Railroad (P-23-003663), a recorded structure, within the proposed study area.

The project site is located adjacent to the Russian River and various tributaries thereof. This portion of Sanel Valley is known to have a high potential for containing buried archaeological sites that may show no signs on the surface. Given the similarity of one or more of these environmental factors, there is a high potential of unrecorded Native American resources in the study area.

Review of historical literature and maps gave no indication of the possibility of historic-period archaeological resources within the study area. While the general vicinity of the preferred project underwent early development during the mid to late 19th century, maps from those eras and from the early 20th century fail to show any buildings or structures with the study area. With this in mind, there is a low potential of unrecorded historic-period archaeological resources within the project site.

No existing information was found on whether paleontological resources are within the study area.

Recommendations

1. A professional archaeologist should assess the recorded archaeological resource in the study area and provide project-specific recommendations. Please refer to the list of consultants who meet the Secretary of Interior's Standards at http://www.chrisinfo.org.
2. There is a high potential for Native American archaeological resources and a low potential for historic-period archaeological resources to be within the study area. It is recommended that a qualified archaeologist conduct further archival and field study to identify cultural resources within those portions of the project area that have not been subject to previous survey coverage. A good faith effort should be made to identify buried archaeological deposits that may show no signs or indications on the surface. Please refer to the list of consultants who meet the Secretary of Interior's Standards at http://www.chrisinfo.org.
3. The Northwestern Pacific Railroad (P-23-003663) alignment crosses the project area. The project area also includes the US Highway 101 over Feliz Creek Bridge (10 0003) and the State Route 175 over Russian River Bridge (10 0045). In addition, the Thatcher Hotel (Tax Certification No. 537.9-23-0002) is located adjacent to the proposed project area. Therefore, it may be that a Section 106 consultation with the Office of Historic Preservation regarding potential impacts to this building and structures is necessary.
4. Any identified cultural resources found during field studies should be recorded on DPR 523 historic resource recordation forms.

Since there is no existing information on whether paleontological resources are within the study area, a paleontological record search would need to be conducted to confirm the potential for occurrence of paleontological resources.

Hydrology and Floodplains

The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM Map Numbers 06045C1851F and 06045C1853F) indicate that the preferred project is mostly located within a special flood hazard area subject to inundation by the 100-year flood (see Attachment A). The majority of the project lies within a floodway area, including the proposed bridges. The pedestrian bridges should be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. In addition, the project would be required to comply with applicable floodplain standards, including the County of Mendocino Municipal Code's floodplain requirements identified in Chapter 20.120.

It is not anticipated that the nature of the proposed improvements would alter the existing drainage pattern in the area as a majority of the improvements are minor and are simply reconfiguring existing infrastructure, and design of the pedestrian bridges would comply with the County of Mendocino Municipal Code's floodplain requirements.

Water Quality and Stormwater Runoff

The construction activities within and adjacent to the Russian River, Dooley Creek, and Feliz Creek could temporarily disturb soils and result in erosion if not properly controlled and repaired. Construction could also be a source of chemical contamination from the use of alkaline construction materials (e.g., concrete, mortar, hydrated lime) and hazardous or toxic materials, such as fuels. Depending on the size and nature of the construction activities, appropriate water quality and stormwater runoff measures would likely be required during construction.

Geology and Soils

There are no major faults located within or adjacent to the study area. The study area is generally surrounded by flat land and therefore, has a low potential for landslides. However, construction of new pedestrian bridges may require site-specific geotechnical investigation. It is anticipated that the design of the pedestrian bridges would comply with any recommendations made in the geotechnical investigations.

Hazardous Waste/Materials

The Hazardous Waste and Substance Sites List (Cortese List) is a planning document used by the State, local agencies, and developers to comply with the California Environmental Quality Act (CEQA) requirements for providing information about the locations of hazardous materials release sites. In accordance with the requirements, a search of the Cortese List was completed to determine if there are any known hazardous waste facilities located on or adjacent to the preferred project site. The data resources that provide information regarding the facilities or sites identified as meeting the Cortese List requirements are: the List of Hazardous Waste and Substances sites from the Department of Toxic Substances Control (DTSC) EnviroStor database; the List of Leaking Underground Storage Tank (LUST) Sites by County and Fiscal Year from State Water Resources Control Board (SWRCB) GeoTracker database; the list of solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside

the waste management unit; the List of “active” Cease and Desist Orders and Cleanup and Abatement Orders from the SWRCB; and the List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC.

In reviewing the above mentioned lists, there was one open case found along U.S. 101 (in Section D as shown on Figure 1 in the Feasibility Study): a LUST cleanup site at 13501 Highway 101 (see Attachment B, Geotracker Map). The site is open, but eligible for closure, and listed for the following potential contaminates of concern: gasoline in aquifer used for drinking water supply.

There are several closed LUST Cleanup Sites within or adjacent to the study area. However, these cleanup sites are complete and were closed in 1995, 1998, 1999, and 2010, respectively.

If the project requires ground disturbance near or within the open LUST cleanup case, contaminated soil may be encountered. Appropriate measures should be in place to properly handle and dispose of contaminated material.

Air Quality and Climate Change

The study area is located within the Ukiah, Willits and Surrounding Area (Inland South) sub-basin of the North Coast Air Basin, which is within the jurisdiction of the Mendocino County Air Quality Management District (MCAQMD). The Inland South sub-basin, like the rest of Mendocino County, is designated as a non-attainment area for the State particulate matter (PM_{10}) standard. The sub-basin is in attainment for all other State standards and for all Federal criteria air pollutants. (MCAQMD 2005)

According to the MCAQMD’s Particulate Matter Attainment Plan (MCAQMD 2005), the primary sources of PM_{10} pollution in the Inland South sub-basin are wood combustion emissions (e.g. woodstoves, fireplaces and outdoor burning), fugitive dust from construction projects, automobile emissions, and industry.

Construction activities may result in air quality impacts related to the generation of dust and exhaust. Depending on the length and nature of the construction, appropriate measures may be required to control dust and exhaust during construction activities.

Operation of the project is not anticipated to create any air pollutants and only minor indirect greenhouse gas emissions from electricity use of the new lights.

Noise and Vibration

Sensitive receptors, including residential homes, are located along the US 101 and SR 175 improvement corridors. Although it is anticipated that construction activities would abide by County of Mendocino noise standards, depending on the duration of construction and type of equipment used during construction, additional measures may be necessary.

In addition, depending on the method of installation for the pedestrian bridge, vibration impacts may occur. A noise and vibration study to further investigate the potential noise and vibration impacts may be required.

Biological Resources (including Section 4(f) Properties)

Section 4(f) properties, as identified in the Department of Transportation Act of 1966, include publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites listed or eligible for listing on the National Register of Historic Places. There are no parks, recreation areas, and wildlife or waterfowl refuges near the study area. With regard to historic properties, please refer to the Historic/Cultural/Paleontological Resources section above for additional information.

A California Natural Diversity Database (CNDDB) record search was conducted, which showed one known special-status species within and adjacent to the study area. Western pond turtle (*Emys marmorata*), a State Species of Special Concern, is known to occur within the Russian River, and consequently, likely in Dooley Creek and Feliz Creek as well (CNDDB 2015). Appropriate surveys and measures would be required if work were to occur within the Russian River and/or the creeks.

In addition, as the CNDDB is not inclusive, further biological investigation would be needed to determine the potential for other special status species to occur in sensitive areas such as the Russian River, Dooley Creek, and Feliz Creek, including bats that may roost beneath the bridges where improvements would occur.

The Migratory Bird Treaty Act (MBTA) precludes destruction or harassment of active bird nests for most bird species. There is the potential for nesting birds to occur within bushes and/or trees adjacent to or within the project site (particularly along the Russian River and the creeks). Work near potential nesting habitats as well as any tree removal required as part of the project could be subject to specific work windows.

Cumulative Impacts

Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. At this time it is not known what potential projects may occur at the same time as implementation of the Hopland Main Street Corridor plan, or that may result in cumulative impacts to which the plan would contribute. This will be evaluated once project activities have been better defined and a general timeline has been determined.

Resource Agency Permitting Requirements

Federal

U.S. Army Corps of Engineers – Section 404/Section 10

Under the Federal Clean Water Act, a Section 404 Permit is needed for the permanent disposal of fill into jurisdictional waters (i.e. Waters of the U.S.). Under the Rivers and Harbors Act, a Section 10 permit is required for work or structures in, under, or over navigable waters of the U.S., or which affects the course, location, condition or capacity of such waters. The project would involve the placement of pedestrian bridges over Russian River and Dooley Creek. If the bridges were designed in such a manner as to place fill in jurisdictional waters (below the ordinary high water mark), an Army Corps permit would be required.

The Army Corps will not issue a permit until a Water Quality Certification is granted from the San Francisco Regional Water Quality Control Board pursuant to its authority under Section 401 of the federal Clean Water Act. In addition, as part of the Section 404/Section 10 process, the Army Corps must consult with the agencies below for concurrence with its decision to issue a permit.

U.S. Fish & Wildlife Service (USFWS)/National Marine Fisheries Service (NMFS) – Section 7 Consultation

If a project may affect species or migratory fish listed under the Federal Endangered Species Act, then the Army Corps will initiate consultation with the USFWS and/or NMFS under Section 7 of the Endangered Species Act (ESA). The USFWS and NMFS share responsibility for administering the ESA; the USFWS has primary responsibility for terrestrial and freshwater species, while NMFS is mainly responsible for marine species.

Section 7 consultations are based on a Biological Assessment (BA), which provides necessary information on any listed species and/or critical habitat present in the project area (also called the action area) and the Project's potential to adversely affect the species and critical habitat. The BA then evaluates the potential impacts to any known protected species and proposes mitigation to reduce any potential impacts to those species.

Section 7 consultations can be "informal" or "formal". Informal consultation determines the likelihood of adverse effects on a listed species or critical habitat and identifies and establishes mitigation measures or project modifications to reduce or avoid adverse effects on these species and habitats. If the federal agency (in this case, the Army Corps), determines that the Project is "not likely to adversely affect" (or "may affect, but is not likely to adversely affect") listed species or critical habitat, the USFWS and/or NMFS will issue a letter of concurrence (i.e., letter of no effect) and consultation is concluded.

If, even after going through the informal consultation process, the project may still affect listed species or designated critical habitat, then formal consultation is required and the USFWS and/or NMFS will issue a Biological Opinion. A Biological Opinion will contain resource-specific mitigation and restoration requirements that will avoid take and adverse effects to the special-status species.

State Historic Preservation Office (SHPO)

Consultation with SHPO is required as part of the Section 404/Section 10 permitting process if cultural resources are known to exist within the project construction zone (also called the Area of Potential Effect or APE). The reason for defining an APE is to determine the area in which cultural resources must be identified, so that effects to any identified resources can, in turn, be assessed. Consultation with SHPO can require extensive coordination activities and can take up to a year. The Army Corps will ask SHPO to concur with its decision to issue its permit. As noted above, there are historic structures within the project area which may require consultation with SHPO.

State

San Francisco Bay Regional Water Quality Control Board (RWQCB) – Section 401 Water Quality Certification/Waste Discharge Requirements (WDR)

Under Section 401 of the Federal Clean Water Act, the State must certify that any activity subject to a permit issued by a federal agency, such as the Army Corps, meets all State water quality standards. In California, the State water quality standards are codified in the Porter-Cologne Water Quality Control Act. The State Water Resources Control Board (SWRCB) and the nine Regional Boards are responsible for taking certification actions for activities subject to any permit issued by the Army Corps pursuant to Section 404 and/or Section 10. The resulting approval is referred to as a Water Quality Certification. The North Coast Regional Water Quality Control Board (RWQCB) is the applicable certifying agency for the project.

If any type of discharge of waste into waters of the State (below top of bank) is proposed as part of the Project, the RWQCB may also need to issue Waste Discharge Requirements (WDRs). Both of the terms "discharge of waste" and "waters of the State" are broadly defined in the Federal Clean Water Act to mean that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact "waters of the State." This can be done through the same application process as the Water Quality Certification, and the RWQCB will determine if WDRs also need to be issued for the project.

California Department of Fish and Wildlife (CDFW) Northern Region – Section 1602, Lake and Streambed Alteration Program

Notification to the CDFW is required for any activity that proposes to deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake. As CDFW's jurisdiction under Section 1600 includes the subsurface and riparian zones, construction activities within the riparian areas would be subject to this agreement.

The Russian River, Dooley Creek, and Feliz Creek occur within the study area and may be impacted as part of the project. Therefore, a Notification of Lake or Streambed Alteration would be required pursuant to Section 1602 of the Fish and Game Code.

CDFW Northern Region – Section 2081 Incidental Take

CDFW must be consulted pursuant to the California Endangered Species Act (CESA), Sections 2081(b) and (c) if construction of the project would result impacts to State-listed species. CESA states that all native plant and wildlife species threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. However, CESA also allows for "take" incidental to otherwise lawful development projects.

Site-specific biological studies would reveal whether there are any State-listed special status species that could be impacted within the project area. If there were, CDFW consultation would begin with their review of a Biological Assessment (BA). The BA should be tailored to CDFW, and include a conclusion of whether or not the project will result in "take" of listed species, as defined in Section 86 of the CDFG Code.

References

California Department of Fish and Wildlife Service (CDFW). 2015. *California Natural Diversity Database*. June.

California Department of Transportation (Caltrans). *California Scenic Highway Mapping System, Mendocino County*. Accessed January 8, 2013: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

Mendocino County. 2009. *Mendocino County General Plan*. August.

Mendocino County. 2015. *Zoning Display Map – Hopland*.

Mendocino County Air Quality Management District. 2005. *Particulate Matter Attainment Plan*. January.

State Water Resources Control Board (SWRCB). 2014a. *Geotracker*. Database Accessed June 2015 at: http://geotracker.waterboards.ca.gov/.

SWRCB. 2014b. *Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit*.

SWRCB. 2014c. *List of Active CDO and CAO Sites from Water Board*.

Whitlock & Weinberger Transportation, Inc. (W-Trans). 2015. *Hopland Main Street Corridor Engineered Feasibility Study*.

Attachment A
FEMA Firm Maps

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was UTM, Zone 10. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey, SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from multiple sources. This information was compiled from the U.S. Geological Survey, 1989 and 1997, National Atlas, 2000 and 2002, National Geodetic Survey, 2005, Mendocino County GIS, 2007, and U.S Census, 2006. Additional information was photogrammetrically compiled at a scale of 1:12,000 from U.S. Department of Agriculture aerial photography dated 2005.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

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Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and their website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D Boundary
CBRS and OPA Boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 Base Flood Elevation line and value; elevation in feet*
(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*
*Referenced to the North American Vertical Datum of 1988
A — A Cross section line
23 — 23 Transect line
Culvert, Flume, Penstock or Aqueduct
Road or Railroad Bridge
Footbridge
97° 07' 30", 32° 22' 30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
1000m E Ticks 1000-meter Universal Transverse Mercator grid values, Zone 10
6000000 FT 5000-foot grid ticks: California State Plane coordinate system, Zone II (FIPSZONE 0402), Lambert Conformal Conic Projection
DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
MLS River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
JUNE 2, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1851F

FIRM

FLOOD INSURANCE RATE MAP

MENDOCINO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1851 OF 2100

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MENDOCINO COUNTY	060183	1851	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06045C1851F

EFFECTIVE DATE
JUNE 2, 2011

Federal Emergency Management Agency

NOTES TO USERS

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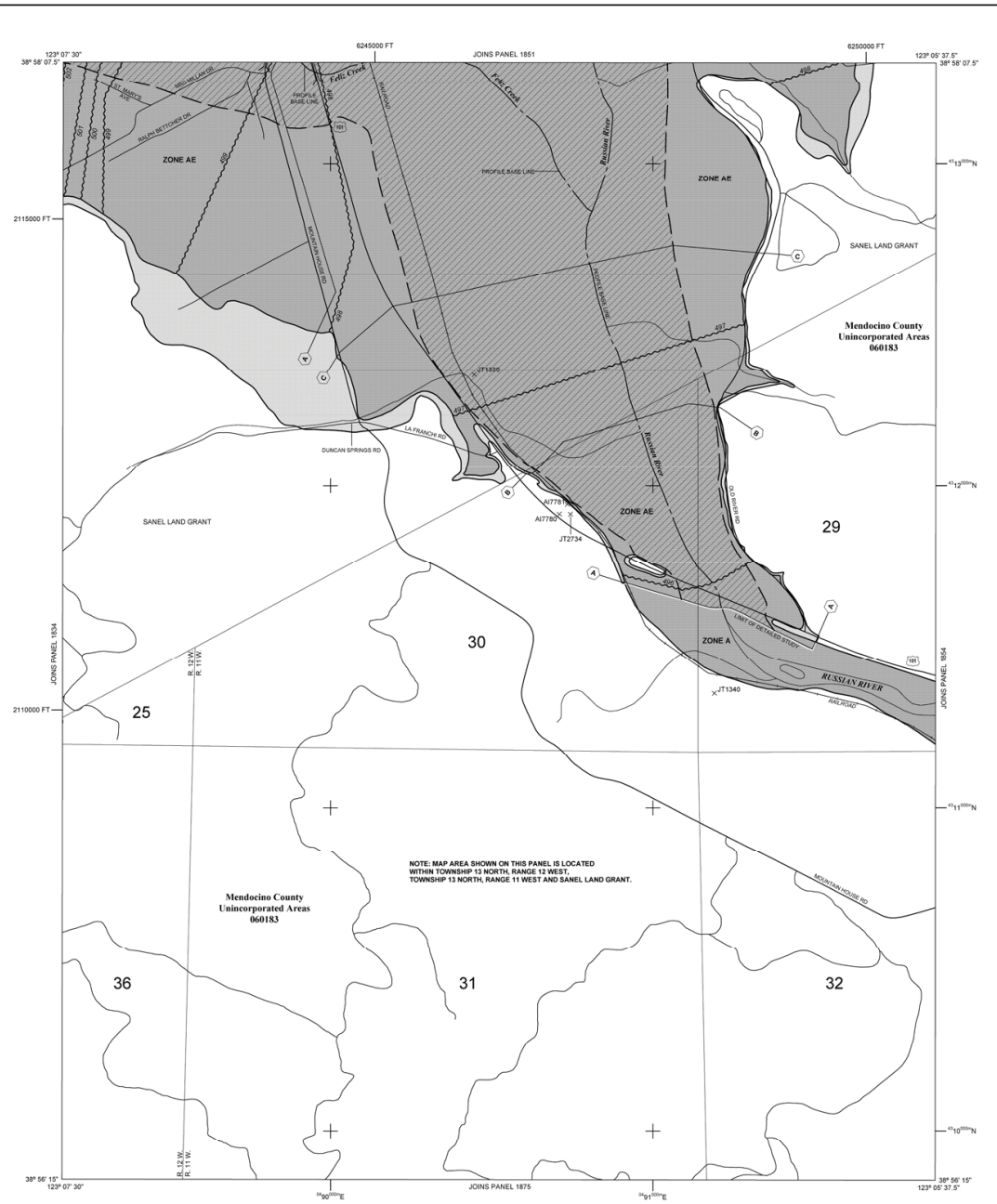


LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X / ZONE D** — Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 (EL 987) — Base Flood Elevation line and value; elevation in feet* / Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footbridge
- 97° 07' 30", 32° 22' 30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4262000 m — 1000-meter Universal Transverse Mercator grid values, Zone 10
- 600000 FT — 5000-foot grid ticks: California State Plane coordinate system, Zone II (FIPSZONE 0402), Lambert Conformal Conic Projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- ● M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
JUNE 2, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1853F

FIRM

FLOOD INSURANCE RATE MAP

MENDOCINO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1853 OF 2100

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MENDOCINO COUNTY	060183	1853	F

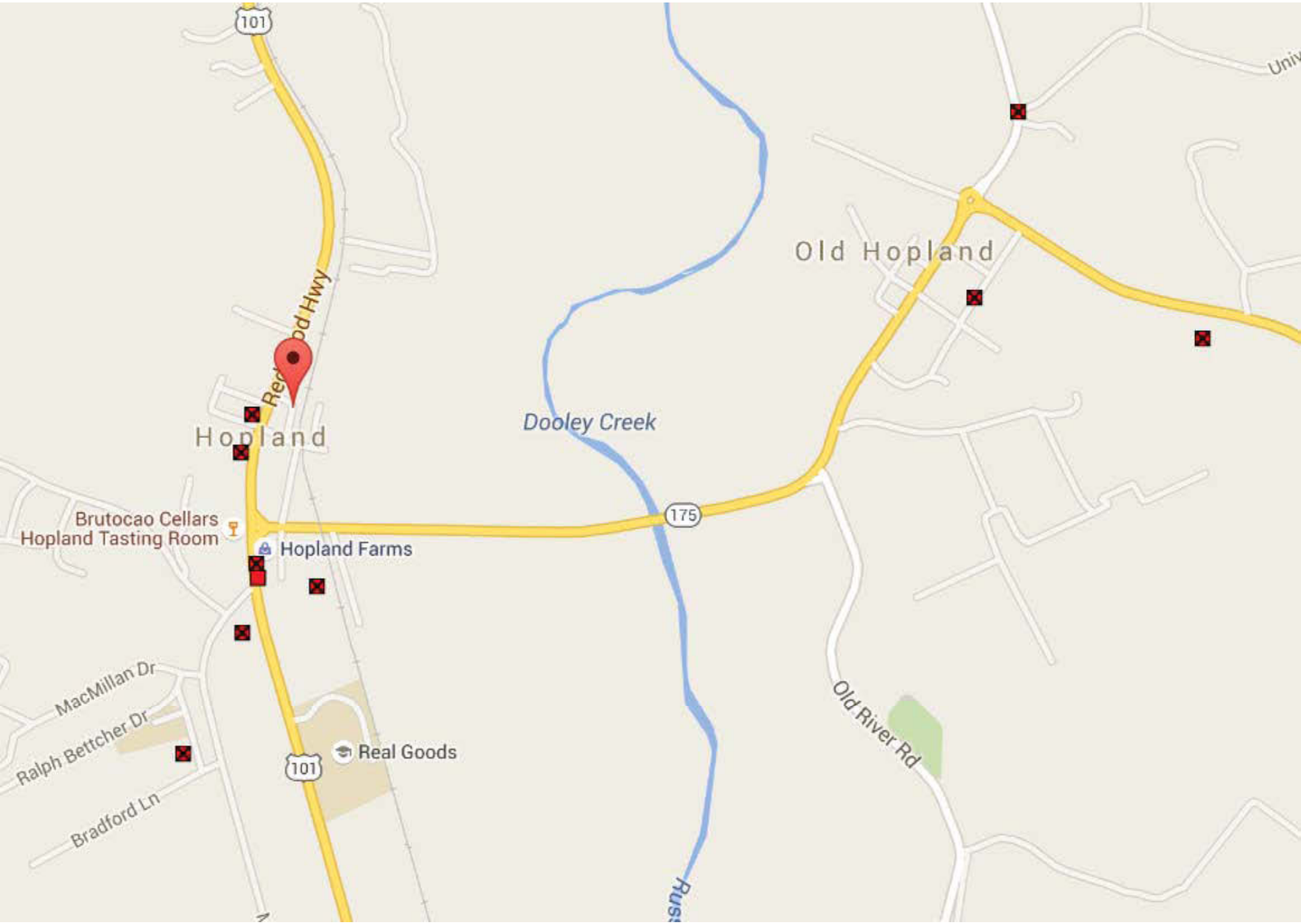
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06045C1853F

EFFECTIVE DATE
JUNE 2, 2011

Federal Emergency Management Agency

Attachment B
Geotracker Map


101
Old Hopland
Dooley Creek
Hopland
175
Brutocao Cellars
Hopland Tasting Room
Hopland Farms
MacMillan Dr
Ralph Bettcher Dr
Bradford Ln
Real Goods
101
Old River Rd

CASE SUMMARY

REPORT DATE
10/23/1997

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

I. REPORTED BY -
UNKNOWN

CREATED BY
UNKNOWN

III. SITE LOCATION

FACILITY NAME
Hopland Farms

FACILITY ID

FACILITY ADDRESS
13501 Highway 101, South
Hopland, CA 95449
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET

V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN
GASOLINE

VI. DISCOVERY/ABATEMENT

DATE DISCHARGE BEGAN

DATE DISCOVERED
10/23/1997

HOW DISCOVERED
Other Means

DESCRIPTION

DATE STOPPED
10/23/1997

STOP METHOD

DESCRIPTION

VII. SOURCE/CAUSE

SOURCE OF DISCHARGE

CAUSE OF DISCHARGE

DISCHARGE DESCRIPTION

VIII. CASE TYPE

CASE TYPE
Aquifer used for drinking water supply

IX. REMEDIAL ACTION
NO REMEDIAL ACTIONS ENTERED

X. GENERAL COMMENTS

XI. CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC370

LOCAL AGENCY

CONTACT NAME	INITIALS	ORGANIZATION_NAME	EMAIL ADDRESS
WAYNE BRILEY		MENDOCINO COUNTY	

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA 95482

CONTACT DESCRIPTION

PHONE TYPE	PHONE NUMBER	EXTENSION
office	(707)-234-6648	

REGIONAL BOARD

CONTACT NAME	INITIALS	ORGANIZATION_NAME	EMAIL ADDRESS
CRAIG HUNT	CSH	NORTH COAST RWQCB (REGION 1)	craig.hunt@waterboards.ca.gov

ADDRESS
5550 SKYLANE BOULEVARD, SUITE A
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

PHONE TYPE	PHONE NUMBER	EXTENSION
FAX	(707)-523-0135	
MAIN	(707)-576-2220	

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