Day 1 - Overview and Plan Structure

Introductions and Opening Remarks
- Introducing the instructors
- Workshop overview
- References and resources you need

(Obaid) Federal, State and Regional Policies
- Why bicycling is important
- Vision Zero in Planning for bicycle network
- Federal Level
  - California Vehicle Code
  - Streets and Highways Code
- MPO-level policies; Complete Streets, Green Streets, Green Infrastructure, etc.
- California Bikeway Funding and New Legislations
- LEED-ND (Neighborhood Design)

(Obaid) Policies of Bicycle-Friendly Cities 1
- What is a Bicycle-Friendly City (BFC)?
- League of American Bicyclists (LAB) - Building Blocks for Bicycle Friendly Community

(Obaid) Bicycle Master Planning
- Who are the Design Users?
- Traffic Characteristics - local vs out of town/unfamiliar
- What type of plan? (Bicycle Plan vs. Active Transportation Plan)
- Land use change impacts on bike infrastructure.
- Environmental analysis and Threshold of Significance for bikeways
- Capital Improvement Program (CIP) planning for Bike infrastructure (pavement maintenance, landscaping maintenance, Street Sweeping, etc.)
- Regional plans and their interactions with a local Bike plan
- Long range Street planning for capacity and access needs
- Capitalizing the future street capacity changes due to land use and/or circulation changes.
- TDM plans and policies.
- Consideration of other street users (Pedestrian, Transit, ADA, SR2S, Vehicle, trucks, Emergency Response, etc.). Working with The “Width Budget”
• On-going and future operational improvements and planning for it
• ITS plans and their role in bikeway planning
• Safe routes to School planning, its data needs, and its relationship to Bikeway planning
• Across jurisdictional boundary issues and planning (freeway interchanges, BART Stations, bus stops, bridges, etc.)
• Project Prioritization process
• Typical Plan Outline Elements
• Public Process: Stakeholders, outreach including equity and technology considerations. Technical Working Group, Policy Advisory Board, role of Bicycle/Pedestrian Advisory Committee/Commission
• Required Elements - State (Caltrans, BTA, etc), MPO, Countywide, regional, and/or funding requirements
  ▪ Executive Summary
  ▪ Overview / Context
  ▪ Policy Framework: Vision, Goals, Policies, Action Statements
  ▪ Relevant Plans, Studies, Policies, Projects
  ▪ Existing Conditions (network, collision data)
  ▪ Needs Analysis (Opportunities and Constraints)
  ▪ Proposed Network (maps & lists)
  ▪ Implementation Plan (tiers, short/medium/long term)
  ▪ Funding Plan
  ▪ Technical Resources (Appendix?)
  ▪ Project Detail Sheets (Appendix?)
  ▪ Design Guidelines (Appendix)

Day 2 - Frameworks and Bikeway Types

(John) Network-level analysis and planning
• Introduction: All Roads Are Bikeways. However...
• Complete Streets, Modal Priority & impacts to primary mode(s), complete corridors
• Bicyclists’ route choice factors: directness/distance, grade, travel time & delay, convenience, traffic stress level, conflict volume and severity, perceived safety, volume of other bicyclists, riding companions (e.g. family)
• Connectivity and barriers (physical and effective), spatial frequency vs. travel speed
• Level of Traffic Stress (LTS) analysis: visualizing connectivity gaps, prioritizing improvements

(John) The bikeway application environment
• The Volume and Speed “space”, informed by context (urban form, traffic character)
• “Social cycling” comfort factors: volume, speed, passing behavior, intersection approach configuration
• Street cross-section view / “width budget”: building-to-building, ROW width, pedestrian realm, paved width, medians and turn lanes
• Street longitudinal view / “travel zones”: Block-start, mid-block, transition, storage/queueing, intersection entry, midpoint and exit. Driveways, ramps and other conflict areas
(John) Bikeway types and elements
- Shared roadways: Woonerven, Yield Streets, local & collector
- Bicycle boulevards / neighborhood greenways
- Bike lanes, buffered bike lanes, “contraflow” bike lanes
- Cycle tracks (1-way, 2-way)
- Shoulder bikeways. Differences from bike lanes. Widths, buffers, right turn in/outs, shoulder-becomes-turn-lane, ramp diverges and merges. Rumble strips
- Colored pavement: MUTCD & Interim Approval status. Conflict area, lead-in, spot treatments (bike box, 2-stage turn queue box)
- Raised elements: partial elevation, flexible markers, physical barriers

Day 3 - Technical Details

(John) Shared Use Paths
- Types: separate corridors, side-paths, shortcuts, grade separations
- Rails-With-Trails
- Grade separations: overcrossing, undercrossing. Vertical clearances: local street, highway, railway

(John) Bikeway types review and wrap-up
- Summary of bikeway types
- Pavement quality, drainage and other maintenance details
- Guide signage: A network property independent of bikeway type. Decision-point, confirmation, identity, kiosk. MUTCD Part 2, Part 9, Community Wayfinding, other

(John) Intersection treatments
- Approach elements: Through bike lane, mixing zone, bike box. Turn-on-red restrictions
- Driveway treatments
- Crosswalks and “cross-bikes”
- Within-intersection elements: 2-stage turn queue box, bike lane extensions
- Bicycle detection: technologies, marking, signage. Buttons. Field testing and maintenance
- Timing and control: Minimum green time, yellow clearance interval. “Head start”
- Bicycle signal faces
- Automated counting and classification: state of the practice, resources
- Roundabouts: bike bypass ramps, widened sidewalk, “cross-bikes” at splitters
- Protected Intersections / “Dutch Junctions”
- Pedestrian Hybrid Beacons
- Rectangular Rapid Flashing Beacons (RRFB)
- Other configurations: Two-Can, “Half-signals”
(John) Tools for transforming streets
- Street cross section & “width budget”
- Minimums vs. optimums
- Lane width reallocation
- Lane assignment changes
- Parking modifications including time-of-day, bike corrals, parklets
- Minor and major widening
- Roundabouts and roundabout corridors

Day 4 - Bringing It All Together

(Obaid) Liability Operational VS Design
- Definitions
- Design Immunity and Negligence
- Field testing process for new traffic control devices to reduce liability risks
- Caltrans and FHWA approval process including the meaning of Interim Approvals
- State of the Literature
- Pilot studies and projects
- “Tactical Urbanism”, pop-up demonstrations, Park-Ing Day
- Consequences of Liability Concerns
- Operational aspects of liability - street maintenance, street sweeping, etc.

(Obaid) Policies of Bicycle-Friendly Cities 2
- Case Studies of Bicycle-Friendly Cities, Plans, and Approaches

(Both) Wrap-up
- Funding
- Technical resources
- Professional development and networking resources