

Station Planning, Design and Implementation

Elizabeth Deakin

University of California, Berkeley

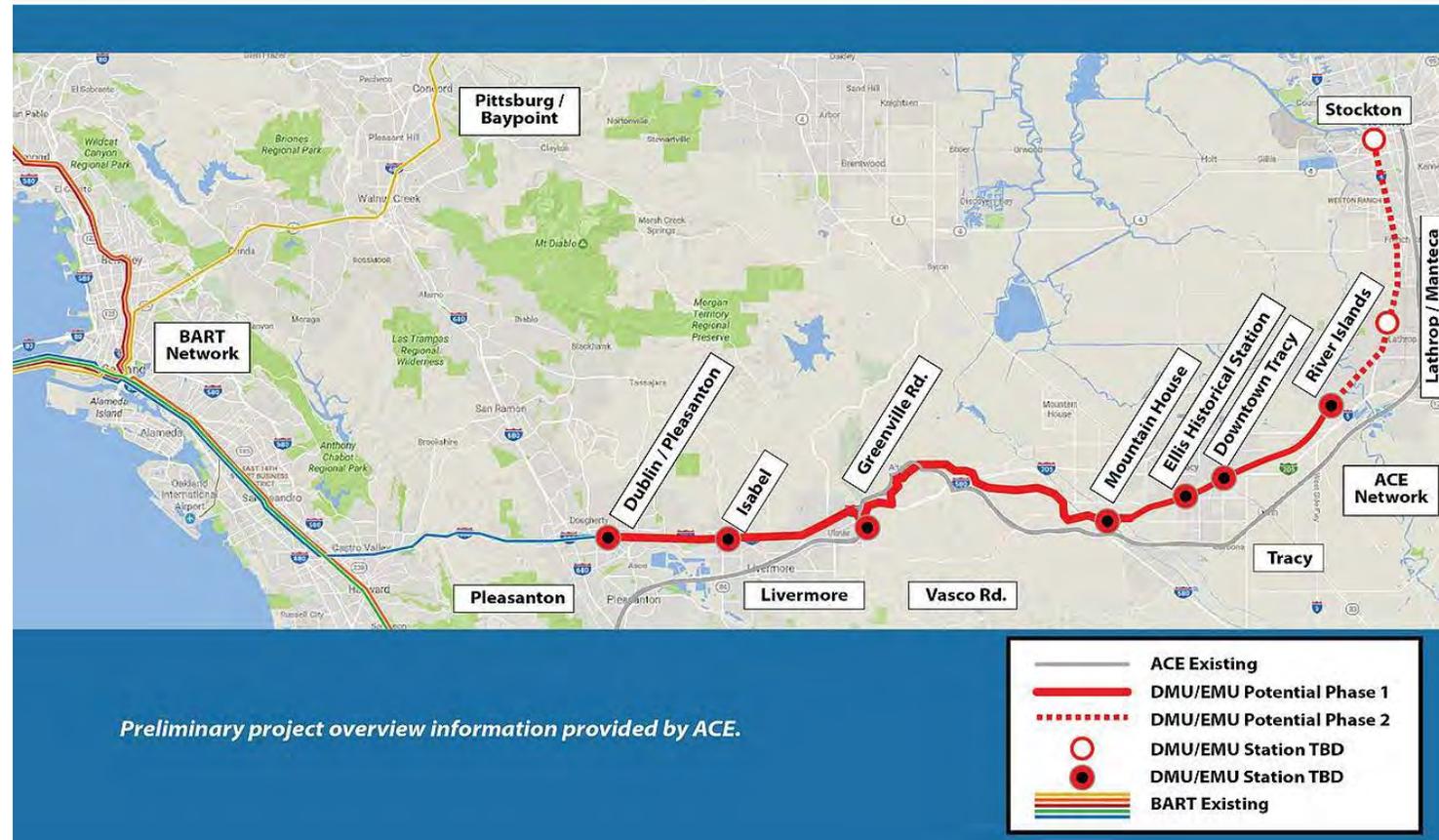


Overview of Presentation

- Discuss station design opportunities in light of community and regional goals
- Discuss implementation strategies

Project Concept

- Connect Central Valley to Bay Area through the Altamont Corridor with enhanced rail transit service
- Feasibility study: consider costs and benefits of alternative designs, implementation strategies
- Issues: number of stations, frequency of service, type of equipment, modes of access, demand



Legislative Framework

Assembly Bill 758 (2017)

- Deliver an interregional rail connection between the San Joaquin Valley (ACE) and BART in the Tri-Valley
- **Advance project implementation that is fast, cost-effective and responsive to community goals and objectives**
- Complete Project Feasibility Report

Other mandates

- **SB 32 & SB 375** – greenhouse gas reduction using new technologies, transportation & land use planning
- **General plan housing element**
- Possibly: new housing requirements to address affordability and availability issues
- Local objectives (each community)

Goals (Under Discussion!)

- Provide a High Quality Transit Connection between Central Valley and Bay Area Via the Altamont Corridor
- Link Station to Community with Multi-Modal Access
- Support Sustainable Growth & Development
- Support Community Goals & Objectives
- Others?

Factors to Consider in Station Planning and Design

- Overall level of demand - function of activities served (land uses, densities, intensities), traveler characteristics (income, party size, etc.), travel alternatives (time, cost, reliability, comfort, convenience)
- Time of travel – early morning, evenings, weekends as well as peak periods (depending on trip purposes) – can affect access modes, security needs, customer desire for amenities, and more
- Catchment area – size of area from which a specific station will attract most of its riders) (depends on station spacing, level of service offered, access modes, travelers' trip purposes
- Different station types may generate different needs – end of line vs mid-line vs transfer station
- Access modes available / to be provided as part of station area design– walk, bike, bus, paratransit, rail transfer, taxi, ride-match service, drop-off...
- Fit with surroundings

Lessons Learned

- **Cost of station goes up with complexity**, in-station accoutrements, amenities (affects construction, operation, maintenance costs)
- **Flexibility in design can be a plus** - start simple, but preserve ability to add later as demand justifies it
- **Funding arrangements can make a difference** , e.g., private sector involvement could lead to sharing of costs or private coverage of costs for some / many elements of station

Planning Considerations

Extent of planning:

- Station property only vs. plan for broader station area?
- Access plan? one-sided vs two sided access?
- Transit-oriented development (TOD) potential? other uses, e.g., commercial node?
- Operator needs, e.g. maintenance shed?

Plan for phased development vs. long range plan:

- Deliver design for demand expected on maturity?

Or

- Start with simple design, leave room for added features?

Access Planning

- **Car parking and other modes of access** - bike, walk, transit, shuttle, drop-off (private, TNC, ...)
- **New technologies and services** (e.g. CCCTA's driverless shuttle, carsharing, etc.) are changing the options
- Need to **plan access routes so they are assets to community** and not traffic problems
- Need to **plan circulation at station itself** – avoid station area congestion, conflicts with pedestrians, etc.

Access options



Possible Strategy for Delivering Service Quickly

- Start with simple designs, limited amenities – focus on getting service operating
- Commit to the development of station area plan (including station upgrades, plan for access improvements, complementary city/neighborhood plan elements) as part of Phase II
- Engage in cost-effective ROW preservation and land banking to allow for future improvements, e.g., improved multimodal access, infill stations, etc.

Station Parking

- High cost even if surface parking; much more if structure (national av. \$10-12K per surface space, \$25-30K and up for space in structure)
- Questions: who should provide it, can it be shared, can it be priced?
- Parking as land-banking: can be a way to generate revenue while development potential builds up and/or planning for development is undertaken, but once travelers are used to having it, can be hard to remove parking when it is time to develop other uses
- Getting the amount right: too much surface parking can be barrier to walk, bike access but vs. not enough can lead to spillover parking, illegal parking, etc.

Transit-Oriented Development

- At its simplest, it's compact, pedestrian- and bike-friendly development built near high quality transit
- TOD helps produce transit trips and that makes transit more productive
- Transit, bike and pedestrian orientation make development more sustainable
- TOD design should be matched to the local community's needs, preferences, climate, heritage – it is NOT a one-size-fits-all product

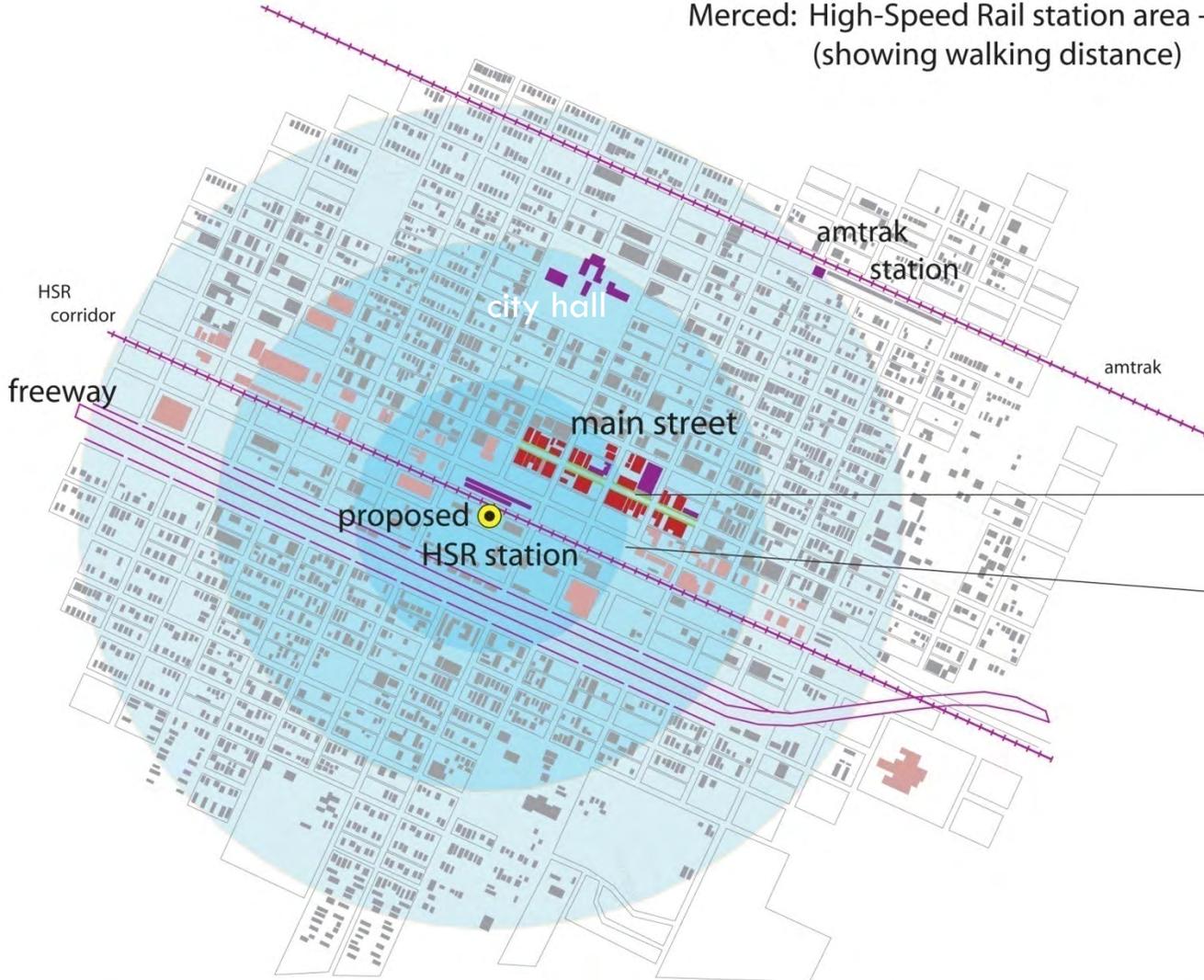
Transit-Oriented Development Comes in Many Varieties



Example of how planning can reflect what's cherished locally

- Example station area “brainstorm planning”
- Identify conditions in station area (quarter-mile, half-mile and one mile radii) – land uses, street designs, economic conditions, infill potential etc.
- Identify major attractions, places of interest, valued buildings
- Illustrate how multimodal street design and development that fits the local context can be replicated, enhanced

Merced: High-Speed Rail station area - redevelopment analysis.
(showing walking distance)



main street

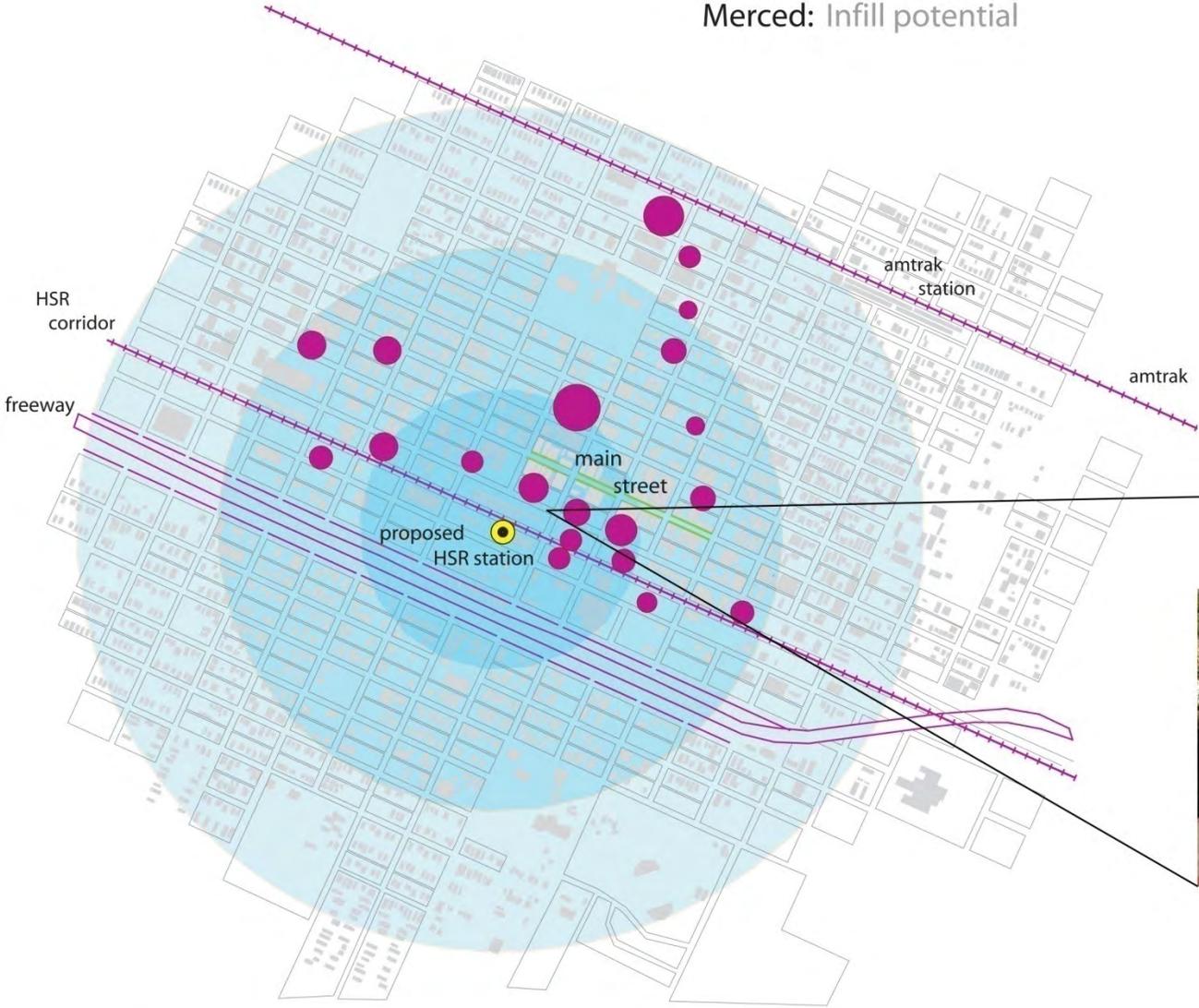


16th street

- downtown retail
- public buildings
- retail/ office
- housing

- HSR station location
- freeway and railways
- 5, 10, 15 minute walk from station
- main street

Merced: Infill potential



-  HSR station location
-  freeway and railways
-  5, 10, 15 minute walk from station
-  areas with infill potential



16th Street – Existing

Redesigning Streets Plus Infill



16th Street – With landscape median



16th Street — Plus sidewalks



16th Street – Plus infill development



16th Street – a revitalized street

Station designs can come in many varieties



Pleasanton BART station – outside view

San Mateo and Belmont Caltrain Stations



Vasco Rd. ACE and San Antonio (Mountain View) Caltrain Stations



Access can be designed to fit local needs and preferences



Warm Springs BART bike lanes;



Bayshore pedestrian overcrossing

Multimodal Station Access (Bishop Ranch Bus to BART; BART Warm Springs bike lanes)



Implementation Strategies -Maximizing Benefits, Sharing Costs

- Land Dedication: donation of land for public use and acceptance by the public of such land for the designated purpose
- Benefit Assessment: assessment for benefits that are specific to property (as opposed to general public benefits)
- Value Capture: recovering some or all of the increase in property value due to investment in public infrastructure (such as rail transit)
- Joint Development: Coordinated public and private investments with shared benefits and costs

More on Land Dedication

- A land dedication is the transfer of private property by its owner to the public for some public use
- May be voluntary or may be a condition of subdivision approval
- In-lieu fees may sometimes be paid instead of land dedication
- Easements for public utilities and other public easements may be utilized as well as full title transfers
- Transportation facilities for which dedications can be required include streets, sidewalks, bicycle paths, and local transit facilities such as bus turnouts, bus pads, and passenger shelters and benches.

More on Value Capture

- Broadly refers to financing methods that capture some of the increases in land value due to the availability of public infrastructure (transit, street improvements, bikeways, etc.) which can increase adjacent/nearby land values because buyers and renters are willing to pay a premium for property (both commercial and residential) with good access
- Studies have found that proximity to transit can produce land value premiums from 1% to over 150% - e.g., Rosslyn-Ballston Corridor (VA suburbs of Washington, D.C.) saw land by 81 percent between 1992 and 2002 because of Metro access
- Capturing a portion of those land value increases can be done through tax increment financing – in CA, through Enhanced Infrastructure Financing Districts (EIFDs) – and funds can be supplemented with revenues from benefit assessment districts, parking districts, etc. and leveraged through bonds

More on Joint Development

- Can involve land dedication of private property to the public, or long term leases of public land for private development
- Can involve below-ground or air rights development
- Can be shared facilities, e.g. shared parking, or coordinated facilities, e.g., commercial space within or adjacent to a terminal
- Development can be open to the public, e.g., retail, or private, e.g. offices
- May be implemented through a public private partnership agreement or other forms of contract.
- Scale can vary from space within a terminal or parking structure to multi-block large scale development (e.g., transit-oriented development (TOD) can be partly or wholly accomplished as joint development.)

More on Benefit Assessments

- These are charges that are levied for activities or improvements that directly benefit property
- Cost is related to benefit to property, not to use of service
- In CA, charter cities can act on their own, general law cities follow state legislation authorizing action (but over 130 authorizations!)
- Steps: petition or resolution, engineer's study and report, apportionment of special benefits to properties, mailed ballots, public hearing, votes(not secret) weighted by amount to be paid; if passed, assessment levied
- Common uses: parking, lighting, street improvements, street trees

Next Steps for Stations

Next Steps for Stations:

Advance project implementation that is fast, cost-effective and responsive to community goals and objectives

- *Adopt clear goals for station location, design, finance*
- *Identify and incorporate high priority local goals and objectives for individual stations*

Strategy: get stations and service up and running; preserve land and ROW to allow for more elaborate station designs, station area plans and access plans in the future