

STAFF REPORT

DATE: March 9, 2017

TO: Bicycling, Transportation, and Street Safety Commission

FROM: Katherine Hess, Community Development Administrator
Brian Mickelson, Assistant City Engineer
Ashley Feeney, Assistant Director of Community Development and Sustainability

SUBJECT: West Davis Active Adult Community – Preliminary Comments

Recommendation

Staff recommends the Bicycling, Transportation, and Street Safety Commission review the proposed West Davis Active Adult Community and provide suggestions to staff and the applicant for consideration during the Commission and environmental review process. Specifically, the Commission is being asked whether there is a compelling reason for deviation from City standards for greenbelt, path, and vehicle lane widths.

Background

David Taormino has submitted applications to the City proposing consideration of the West Davis Active Adult Community project. The site is 75 acres on the north side of Covell Boulevard, west of Sutter-Davis Hospital. Approval of the project would require General Plan Amendment, and voter approval under Measure R. An Environmental Impact Report will be prepared. Other entitlements would include Development Agreement, Affordable Housing Plan, Annexation (including a tax-share agreement) and implementing approvals, such as subdivision maps.



Figure 1: Location

The proposal includes the following components:

- 325 for-sale units, primarily single-family detached and predominantly single-story
- 150 affordable senior apartments
- 3-acre (approximate) Activity and Wellness Center, including pool, public restaurant, outdoor patio, and parking lot
- 3-acre (approximate) parcel for University Retirement Community expansion
- Greenbelts, drainage, and agricultural buffer (including off-site agricultural buffer and stormwater detention)

Eighty percent of the units, including the affordable apartments, are proposed to be entitled as a senior citizen housing development. At least one occupant of these units would be required to be 55 and over, with all other occupants either spouses/partners aged 45 and older or health care providers. The remaining twenty percent of the units would not have age restrictions.

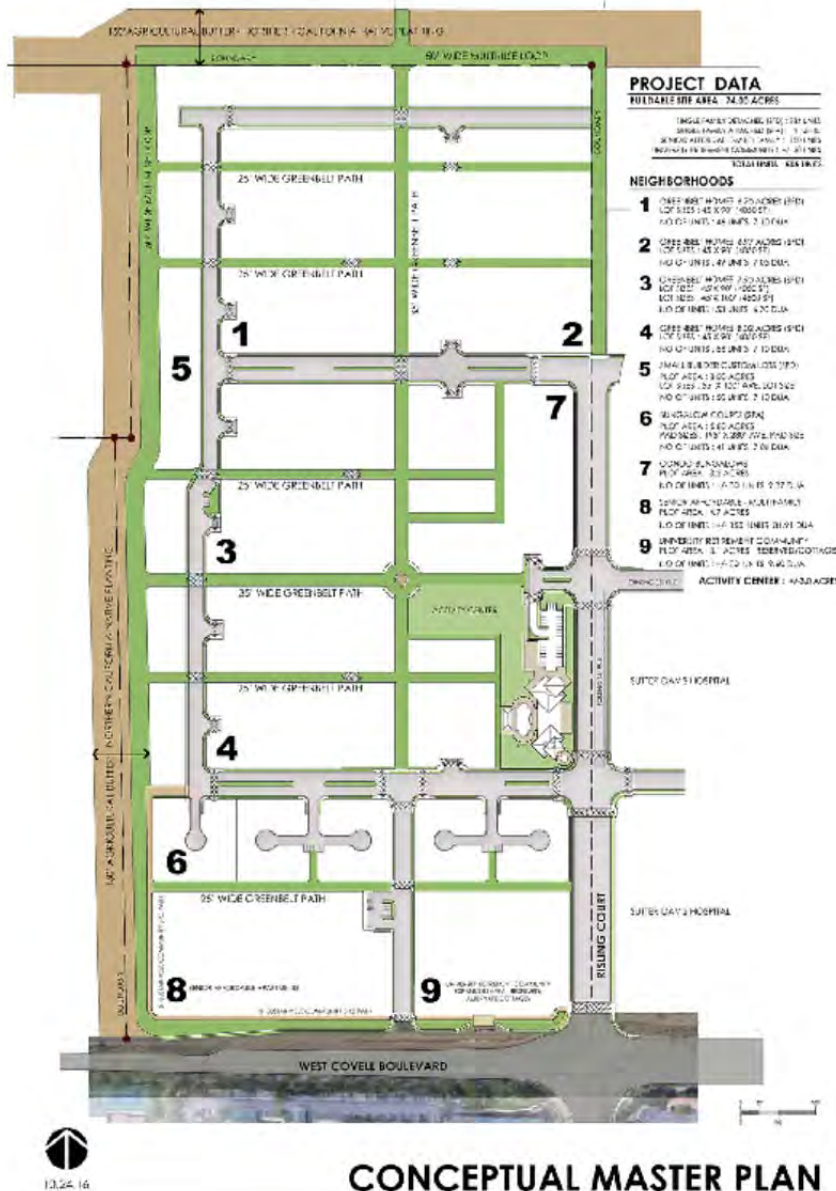


Figure 2: Conceptual Master Plan

Application documents are at <http://cityofdavis.org/city-hall/community-development-and-sustainability/development-projects/west-davis-active-adult-community>

De Novo Planning Group, which has experience preparing environmental studies in Davis, has been selected to prepare the CEQA documents. Staff anticipates that the following policy topics will drive the key planning and environmental analysis for this project:

- Impacts to agricultural and biological resources.
- Traffic and circulation impacts, including accommodations for pedestrians and cyclists connecting to the existing built environment.
- Project consistency with City goals for sustainability, urban development, parks and open space, and community character.

The Environmental Impact Report will also cover the required CEQA analyses of impacts to public utilities and facilities, greenhouse gas emissions, alternatives, and cumulative impacts.

In January, the City Council gave the following directions to staff:

1. Solicit Commission input on the proposal, as outlined in the report at <http://documents.cityofdavis.org/Media/Default/Documents/PDF/CityCouncil/CouncilMeetings/Agendas/20170124/04H-WDAAC-Preliminary-Direction.pdf>;
2. Return to Council with a budget adjustment and contract for preparation of an Environmental Impact Report;
3. Initiate review of the fiscal impacts of the proposal; and
4. Process the applications and bring them to Planning Commission and City Council hearing upon completion of staff and commission reviews.

Commission Review Process

The purpose of this workshop is to allow the Bicycling, Transportation, and Street Safety Commission to provide preliminary review and comment, focusing on general topics such as mix of land uses, roadway and greenbelt networks, relationship of the site to surrounding uses, and issues to be addressed as the project is refined prior to environmental review and public hearing.

Later in the review process, the BTSSC will have an opportunity to review the Draft EIR and make comments to be addressed in the Final EIR, prior to formal public hearings on the applications. Other advisory commissions will be asked to review the proposal, prior to public hearing before the Planning Commission and City Council. All applicable commissions will be asked to make advisory comments on policy consistency related to their charges. Specifically, commissions will be requested to comment on project components that should be incorporated into the Baseline Project Features as the City Council considers presenting the proposal to the voters. Staff anticipates that comments from advisory commissions would be presented to the Planning Commission and City Council in a matrix format, with staff notes on how recommendations have been addressed.

Preliminary dates for commission review, and likely topics for discussion, are as follows. This will be refined as the evaluation proceeds.

Commission	Tentative Date	Discussion Topics
Senior Citizen	February 9 (workshop) March 9 (recommendations)	Senior-friendly components of subdivision, including age restrictions, greenbelt configuration, unit types and features, and recreational/HOA amenities; access to public transit and paratransit; consistency with Guidelines for Housing that Serves Seniors and Persons with Disabilities
Natural Resources	February 27	Sustainability components, environmental analysis (when released)
Open Space and Habitat	March 6	Agricultural mitigation and buffer, environmental analysis (when released)
Bicycle, Transportation, and Street Safety	March 9	Street layout and connectivity, roadway and path widths, Covell Boulevard frontage improvements
Recreation and Park	March 16	Park and greenbelt location and amenities
Social Services	March 20	Affordable housing proposal
Finance and Budget	TBD, likely spring-summer	Fiscal impacts on City, sensitivity analysis reflecting Development Agreement commitments, tax-share agreement, and project refinements

Completion of the Environmental Impact Report would require approximately one year. Public hearings before Planning Commission could be expected in early 2018.

Preliminary Review Comments

Staff has a few initial comments on the proposal, based upon our preliminary review. Additional comments by Commissioners are encouraged. Staff and the applicant have the goal of identifying any substantive changes to the proposal prior to confirming the Project Description for the purpose of scoping the Environmental Impact Report.

Location and Uses. This location may be appropriate for development of housing targeted to seniors. It is proximate to Sutter-Davis Hospital, the University Retirement Community, and medical offices. The site is within the Sphere of Influence adopted by the Yolo County Local Agency Formation Commission. Adequacy of proximate services for residents, including shopping, recreational amenities, social activities, and schools, would be evaluated as part of the application review.

Measure R Requirements. Staff anticipates that Baseline Project Features, as required by Measure R, will be refined through public and commission review. Development Agreement and Preliminary Planned Development provisions, including special conditions of approval, are also anticipated to be reviewed concurrently with the Baseline Project Features. The Environmental Impact Report will identify mitigation measures to address adverse environmental effects.

Should the applications be approved by the City Council and the voters, implementing actions such as subdivision maps and conditional use permits would be processed through Planning Commission. At that time, Development Agreement could be refined, as necessary, in accordance with the provisions of the General Plan Amendment and Baseline Project Features.

Internal Bicycle Circulation

The proposal includes a mix of on-street and off-street pathways to provide connections from Covell Boulevard through the site. There would also be a walkway/trail along the west and north edges of the site, as part of the agricultural buffer and drainage facility. It is assumed that all external bicycle and pedestrian trips would go through the intersection of Covell Boulevard, Shasta Drive, and Risling Place (see Covell Boulevard discussion, below).



Figure 3 Bicycle Circulation

Greenbelt widths are discussed in the following section. With respect to on-street bicycle facilities, staff notes that seven-foot bicycle lanes are proposed on the main north-south and east-west segments (shown in yellow, above), while the smaller residential streets would have a shared ten-foot travel lane in each direction, plus on-street parking. On-street connections to the northeast portion of the site are circuitous but do provide options for the rider.

The plan could accommodate a potential future SR 113 crossing north of Sutter Davis Hospital. This was a concept envisioned in the 2001 General Plan Mobility Element, although it is not part of the current Bicycle Action Plan or Transportation Element. Funding and an appropriate location for an eastern landing would need to be identified if such a project were to be pursued.

Greenbelts.

The preliminary concept plan shows greenbelts of 25-35 feet throughout the project, no public park, and an HOA-maintained outdoor area as part of the Activity Center.



Figure 4: Conceptual Greenway Path

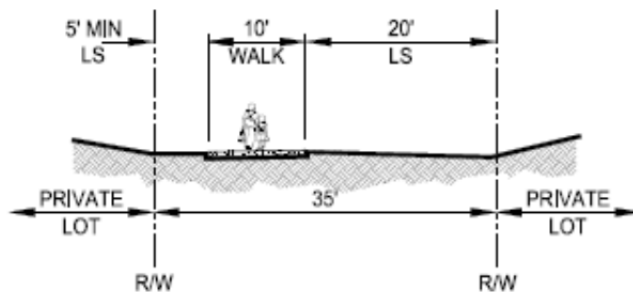


Figure 5 - 35' Multipurpose Pathway (Central Spine)

The General Plan calls for greenbelts averaging 100 feet wide. Recently-adopted street standards call for multi-use paths to be 12 feet wide, with 2 foot rideable/walkable shoulders, for a total of 16 feet of rideable surface (FHWA guidelines and Shared-Use Path LOS analysis can be used in determining appropriate path width to maximize LOS without overbuilding infrastructure).

Staff feels that a central greenbelt could serve as the pedestrian/bicycle circulation corridor and public green space for subdivision residents, but it would need to be of appropriate width to accommodate a variety of uses, including activity nodes that might include uses such as play structures, outdoor exercise equipment, and/or a fenced play area for small dogs. The variety of potential users, including cyclists, persons with mobility impairments, parents with babies and strollers, and other users are likely to require wider-than-proposed paths to reduce potential for conflicts.

Covell Boulevard Frontage and Improvements

Primary vehicular access to the site would be from Risling Place, adjacent to Sutter-Davis Hospital. Secondary (right-in, right-out) vehicular access would come from Covell Boulevard west of the main entrance. The Covell Boulevard edge is anticipated to include two westbound travel lanes (to be considered in the EIR), a planted parkway strip, and a multi-use trail south of a relocated drainage channel. The applicant is proposing to retain the free right turns on the south side of Covell Boulevard at Shasta Drive. (See Attachment 4.)

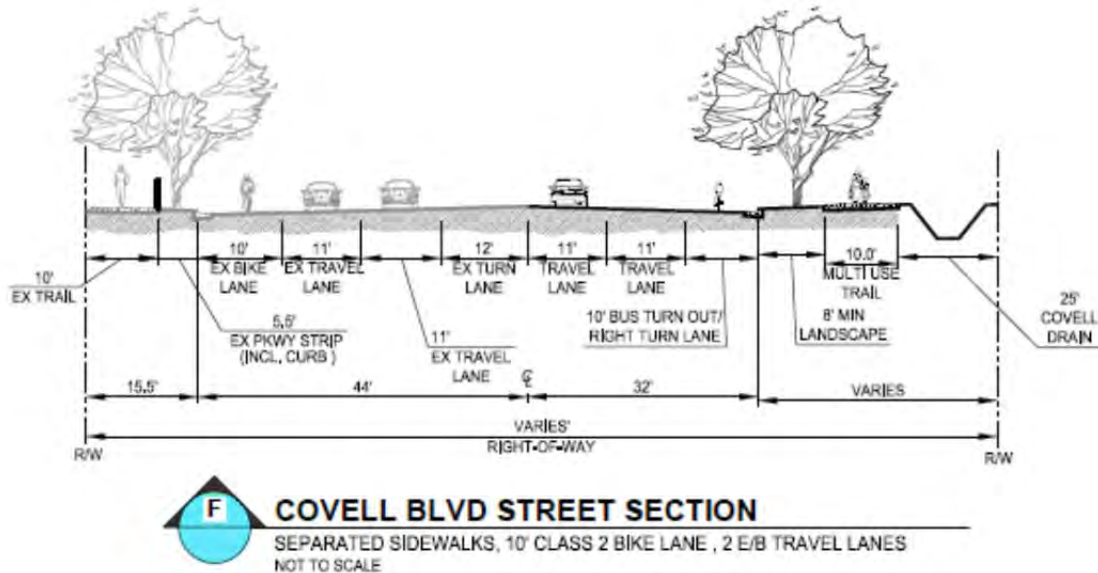


Figure 6 - Covell Boulevard Street Section

Staff notes that the proposed eleven-foot travel lane exceeds the newly-adopted standard of ten feet, and the ten-foot multi-use trail on the north side of Covell is less than the new standard of twelve feet.

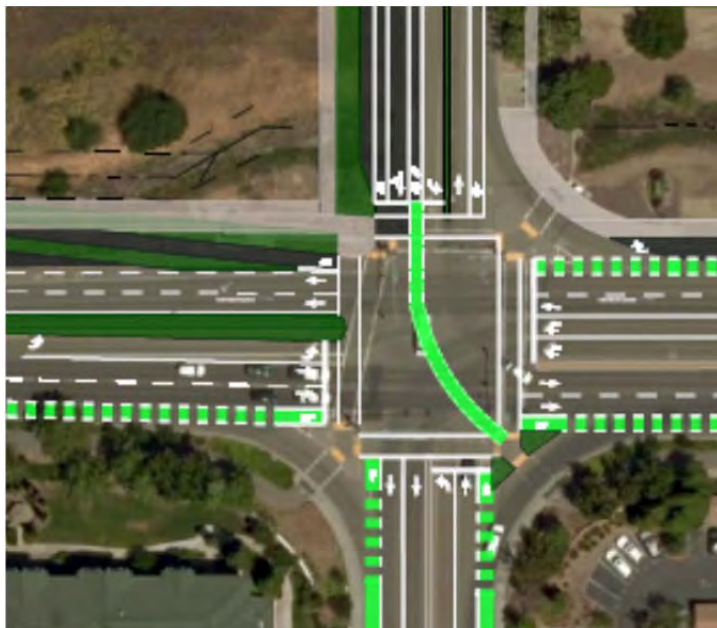


Figure 7- Covell/Risling/Shasta Intersection

The General Plan Circulation Element includes an action bullet to “Eliminate intersection standards that allow high speed right turns for motor vehicles.” Staff and the applicant are working to evaluate options for the free right turns at the intersection of Covell with Shasta and Risling to improve safety for pedestrians and vehicles while addressing vehicle circulation patterns, particularly from northbound Shasta to eastbound Covell.

Internal vehicle connectivity and emergency access.



Figure 8 - Aerial Overview

Staff feels that the preliminary site plan could be improved with the addition of greater connectivity and loop streets, similar to the concepts illustrated in Figure 2 of the General Plan Transportation Element (below). Interconnectedness will accommodate vehicles for emergency services and waste removal, and improve “permeability” and resident access throughout the neighborhood.

The preliminary site plan also shows multiple flag lots at the ends of the cul-de-sacs. These lots can require frequent curb cuts, which can create difficulty for placement of street trees, on-street parking, and waste collection. The driveways for the flag lots might also pose challenges for senior citizen residents.

The accommodations for bicycle, pedestrian, and vehicular travel along Risling Place will require particular care with respect to crosswalk placement, adequacy of vehicular circulation, and adequacy of bicycle facilities. Staff is proposing to reach out to Sutter-Davis Hospital to request the latest thoughts on future development in the hospital’s expansion area, so that improvements can be coordinated as well as possible. Public safety staff have also expressed a strong preference for emergency vehicle and emergency access to John Jones Road, through a road or easement across the hospital site.



Figure 9: Transportation Element Figure 2 - Street Connectivity Concepts

Attachment 3 contains proposed street sections for the subdivision. These plans show 4-foot parkway strips on two sections, Section C and Section D (Risling). Based upon staff review and comment, these sections will be changed to include a 6' sidewalk and 6' parkway strip on the WDAAC side of Section C, and 6' parkway strips on Section C with space freed by reducing the median from 12 to 8 feet.

Staff notes the 12' travel lanes proposed for all internal street sections except for the Section A residential streets serving the garages to the single-family homes. . This is wider than the City standard of ten feet. The applicant has stated that he feels wider lanes are more comfortable for senior drivers.

The Environmental Impact Report will identify improvements necessary to mitigate impacts of the project on the transportation system.

Attachment

1. Preliminary Master Plan
2. Conceptual Site Plan
3. Street Sections, with Key
4. Covell Boulevard Concept Plan
5. Transportation System Design Standards

AGENDA ITEM #6A
West Davis Active Adult Community

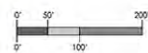
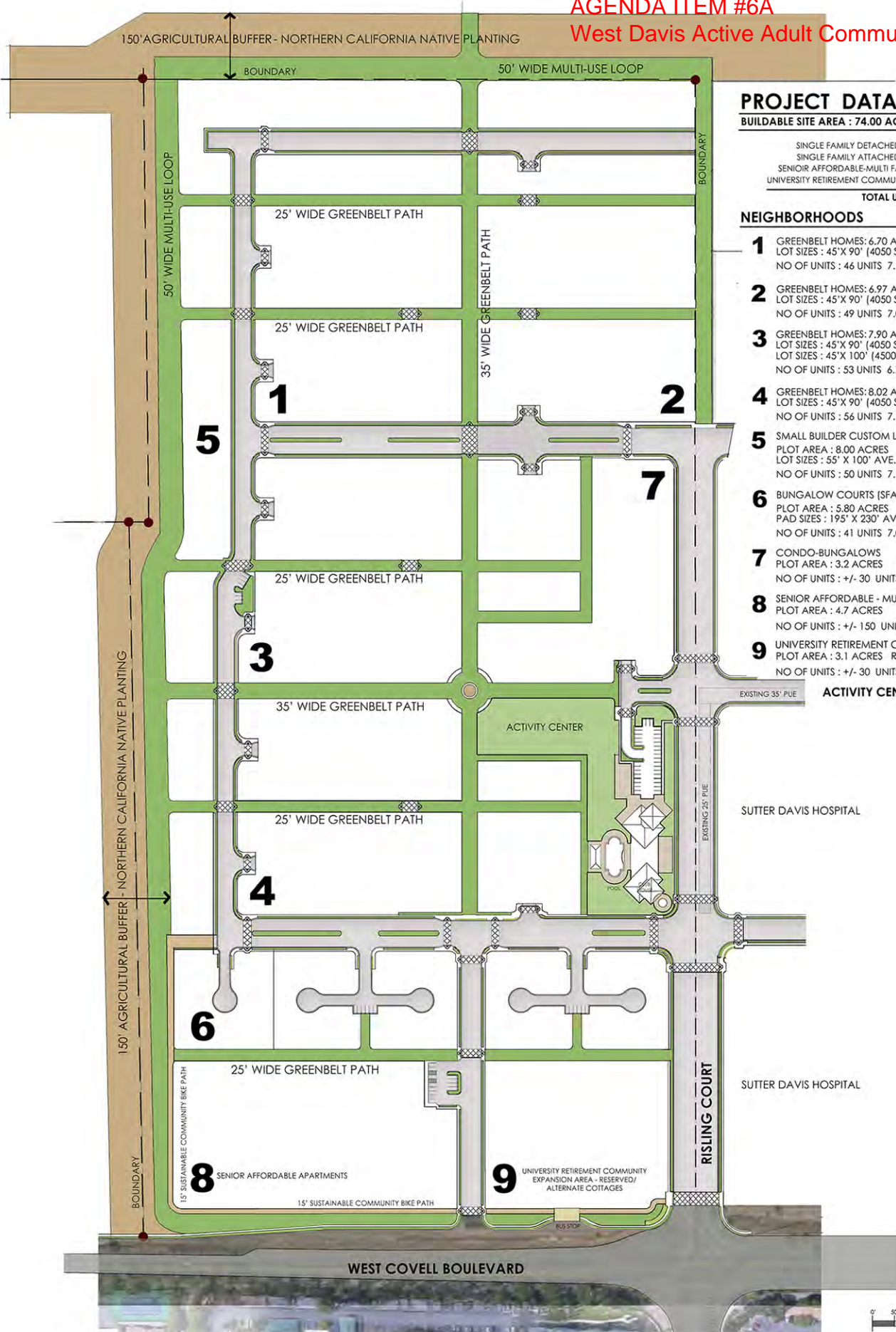
PROJECT DATA

BUILDABLE SITE AREA : 74.00 ACRES

SINGLE FAMILY DETACHED (SFD) : 284 UNITS
 SINGLE FAMILY ATTACHED (SFA) : 41 UNITS
 SENIOR AFFORDABLE-MULTI FAMILY : 150 UNITS
 UNIVERSITY RETIREMENT COMMUNITY : +/- 30 UNITS
TOTAL UNITS - 505 UNITS

NEIGHBORHOODS

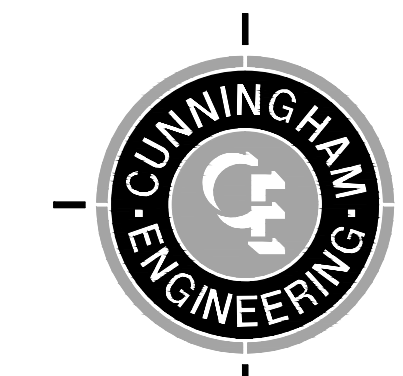
- 1** GREENBELT HOMES: 6.70 ACRES (SFD)
 LOT SIZES : 45' X 90' (4050 SF)
 NO OF UNITS : 46 UNITS 7.10 DUA
 - 2** GREENBELT HOMES: 6.97 ACRES (SFD)
 LOT SIZES : 45' X 90' (4050 SF)
 NO OF UNITS : 49 UNITS 7.03 DUA
 - 3** GREENBELT HOMES: 7.90 ACRES (SFD)
 LOT SIZES : 45' X 90' (4050 SF)
 LOT SIZES : 45' X 100' (4500 SF)
 NO OF UNITS : 53 UNITS 6.70 DUA
 - 4** GREENBELT HOMES: 8.02 ACRES (SFD)
 LOT SIZES : 45' X 90' (4050 SF)
 NO OF UNITS : 56 UNITS 7.10 DUA
 - 5** SMALL BUILDER CUSTOM LOTS (SFD)
 PLOT AREA : 8.00 ACRES
 LOT SIZES : 55' X 100' AVE. LOT SIZE
 NO OF UNITS : 50 UNITS 7.10 DUA
 - 6** BUNGALOW COURTS (SFA)
 PLOT AREA : 5.80 ACRES
 PAD SIZES : 195' X 230' AVE. PAD SIZE
 NO OF UNITS : 41 UNITS 7.06 DUA
 - 7** CONDO-BUNGALOWS
 PLOT AREA : 3.2 ACRES
 NO OF UNITS : +/- 30 UNITS 9.37 DUA
 - 8** SENIOR AFFORDABLE - MULTI FAMILY
 PLOT AREA : 4.7 ACRES
 NO OF UNITS : +/- 150 UNITS 31.91 DUA
 - 9** UNIVERSITY RETIREMENT COMMUNITY
 PLOT AREA : 3.1 ACRES RESERVED/COTTAGES
 NO OF UNITS : +/- 30 UNITS 9.60 DUA
- ACTIVITY CENTER : +/-3.0 ACRES**



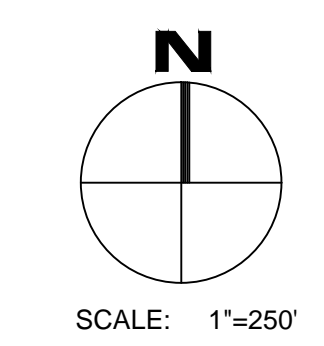


AERIAL OVERVIEW
FOR
WEST DAVIS ACTIVE ADULT
DAVIS, CALIFORNIA

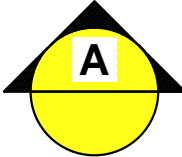
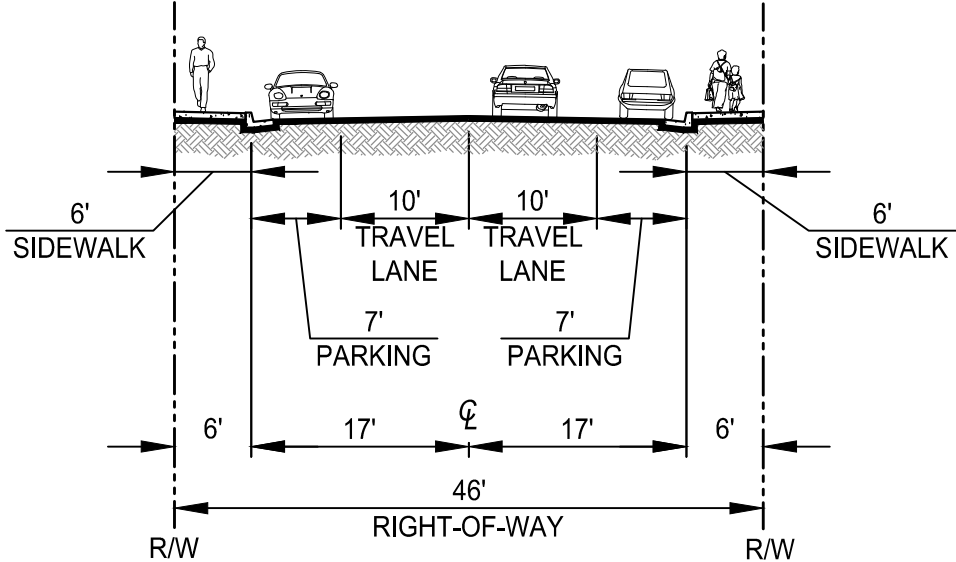
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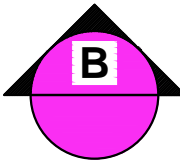
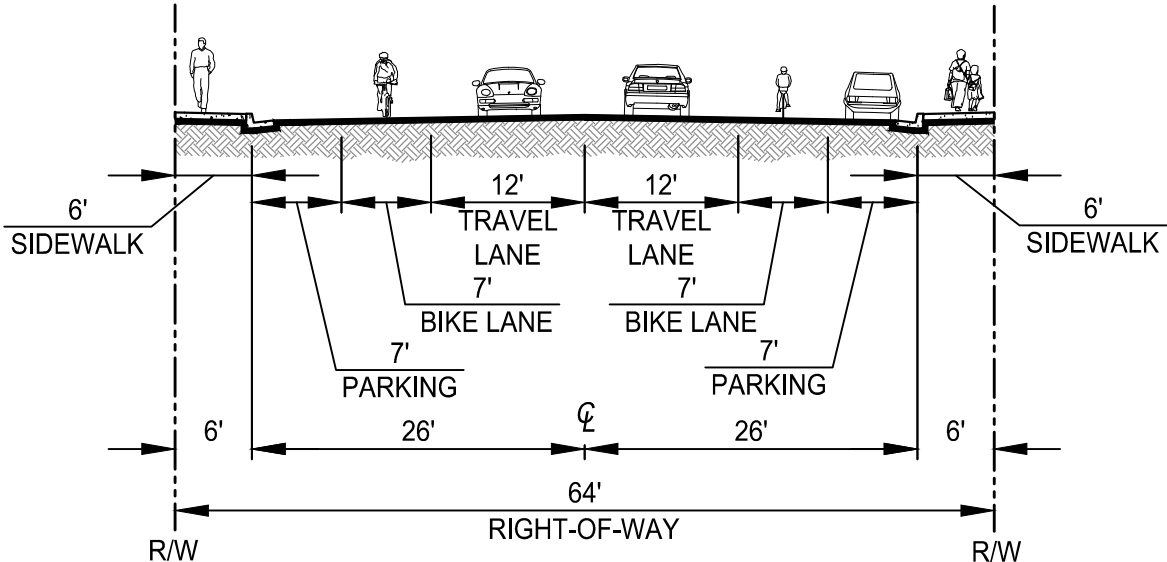
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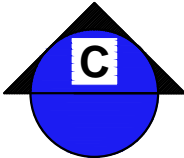
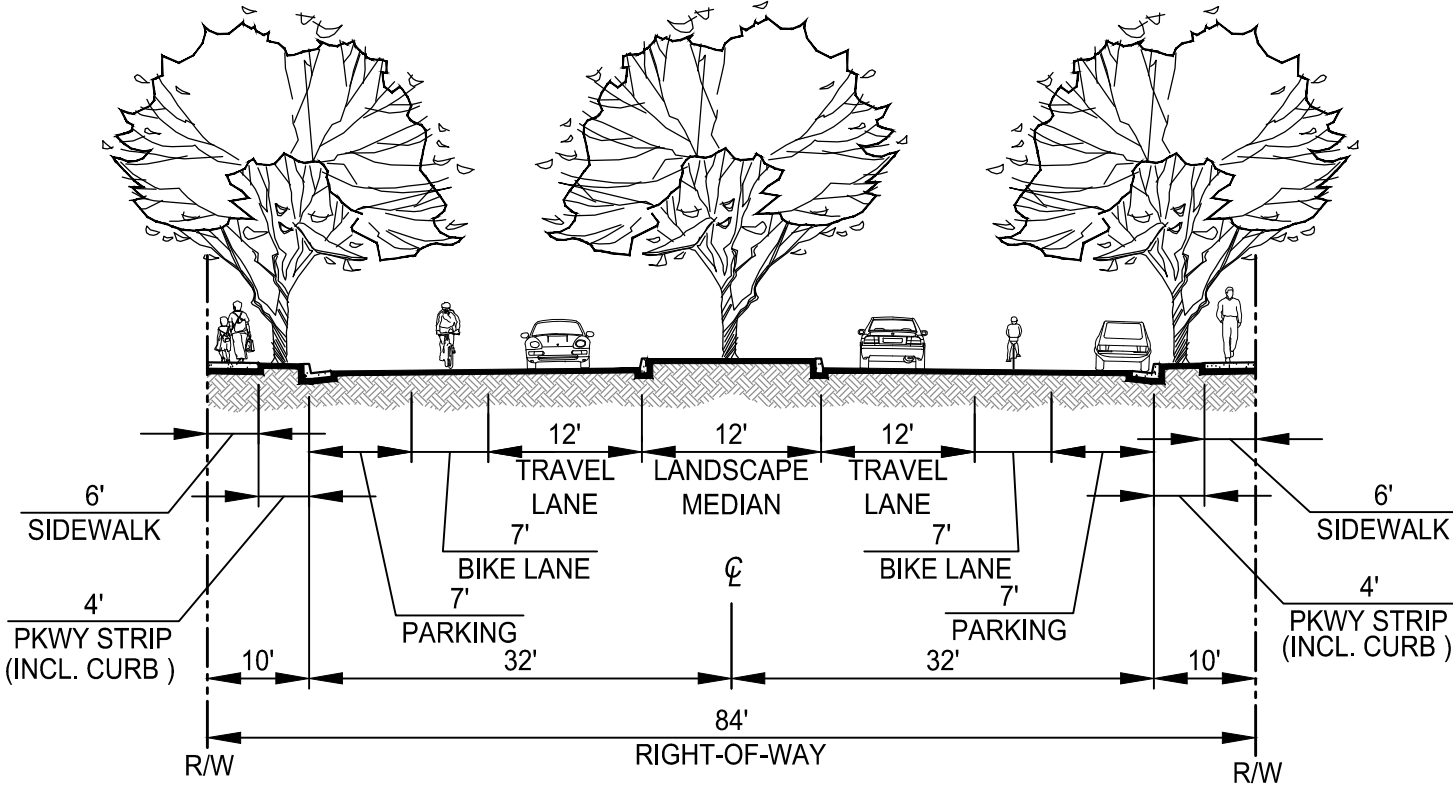
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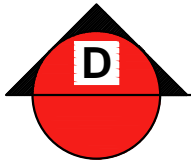
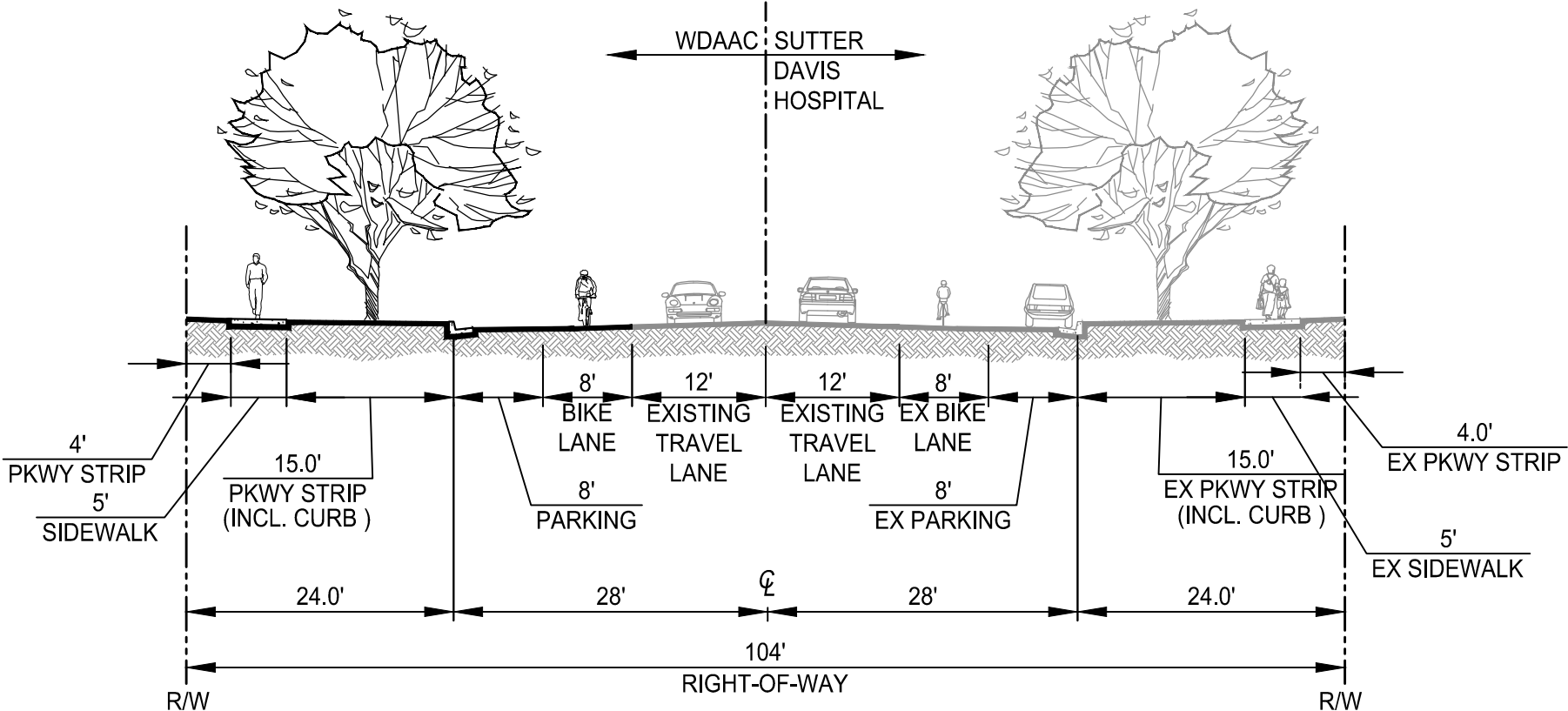
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2 LANE STREET SECTION
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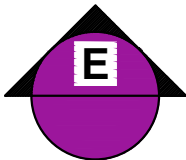
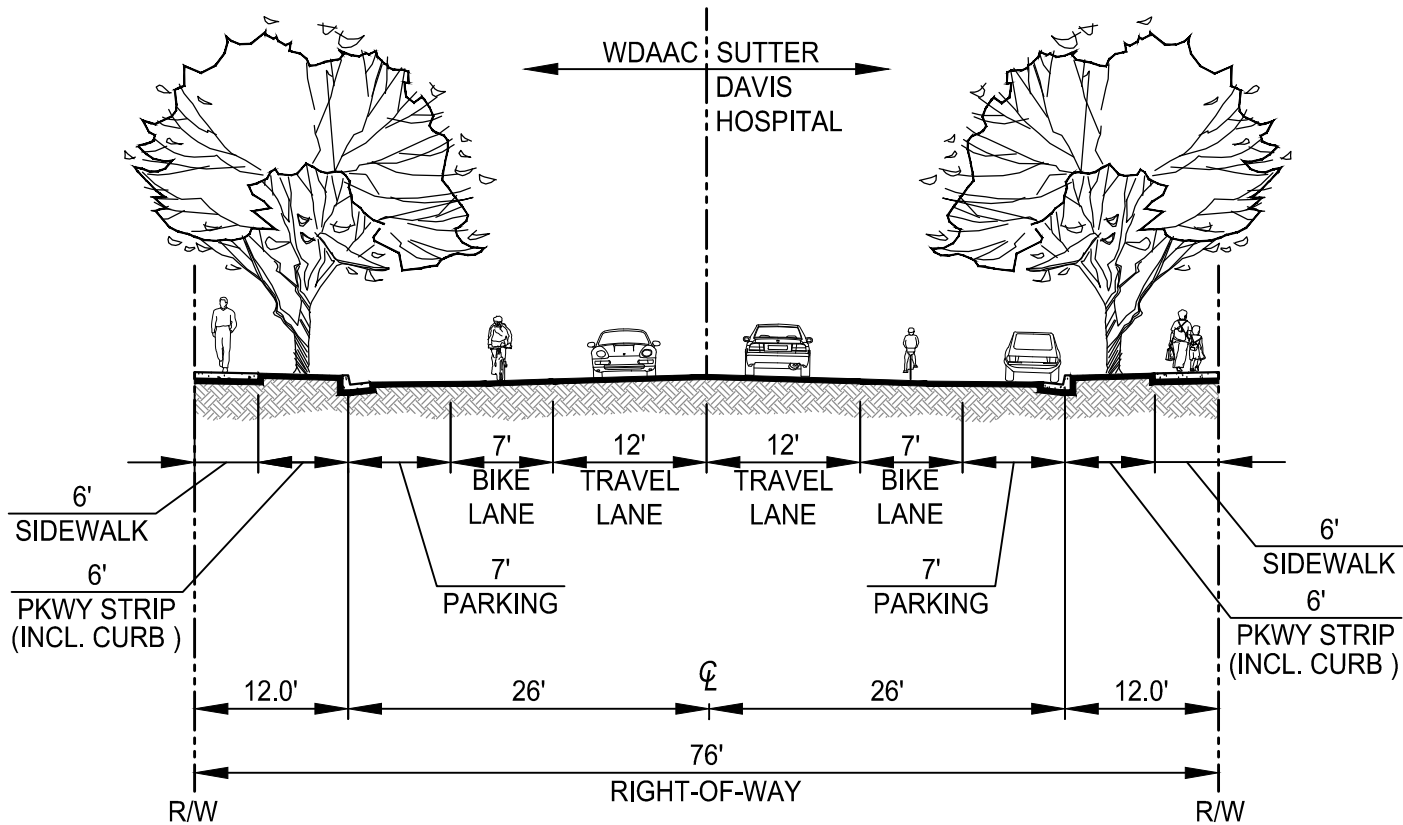


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2 LANE STREET SECTION

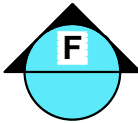
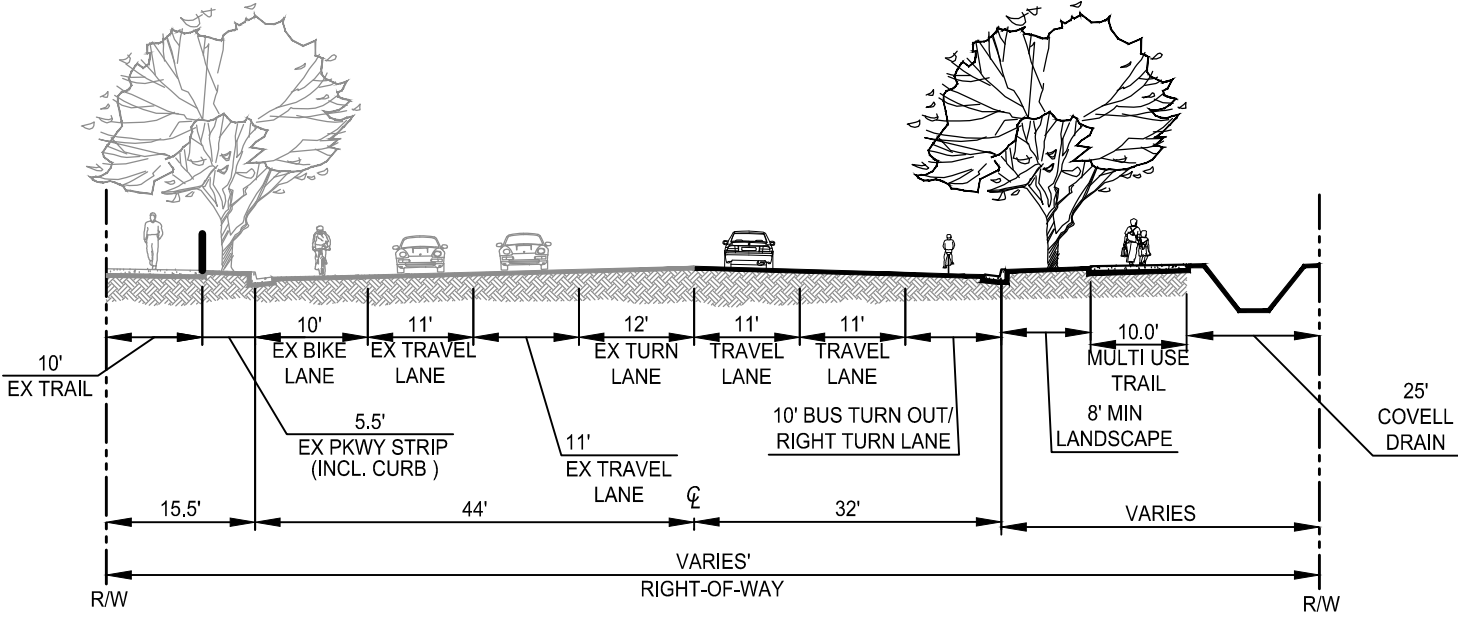
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COVELL BLVD STREET SECTION

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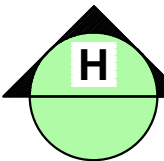
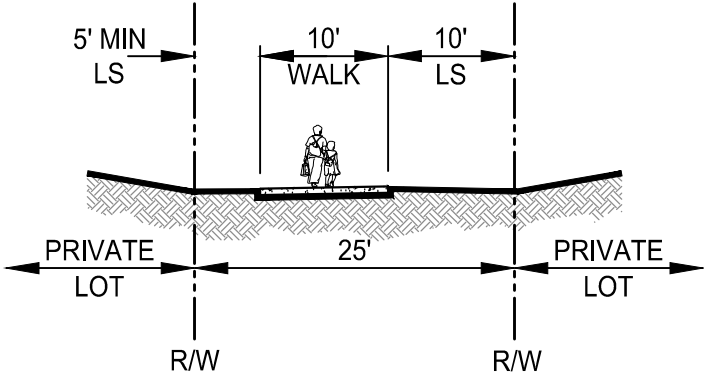


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25' MULTIPURPOSE PATHWAY

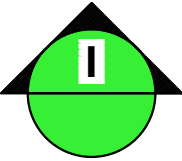
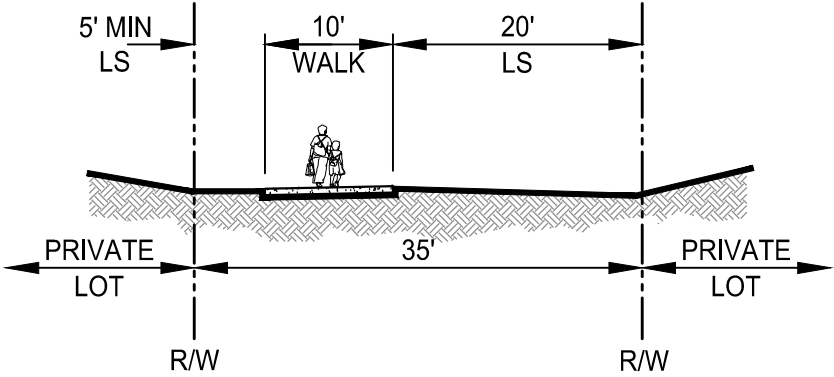
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35' MULTIPURPOSE PATHWAY

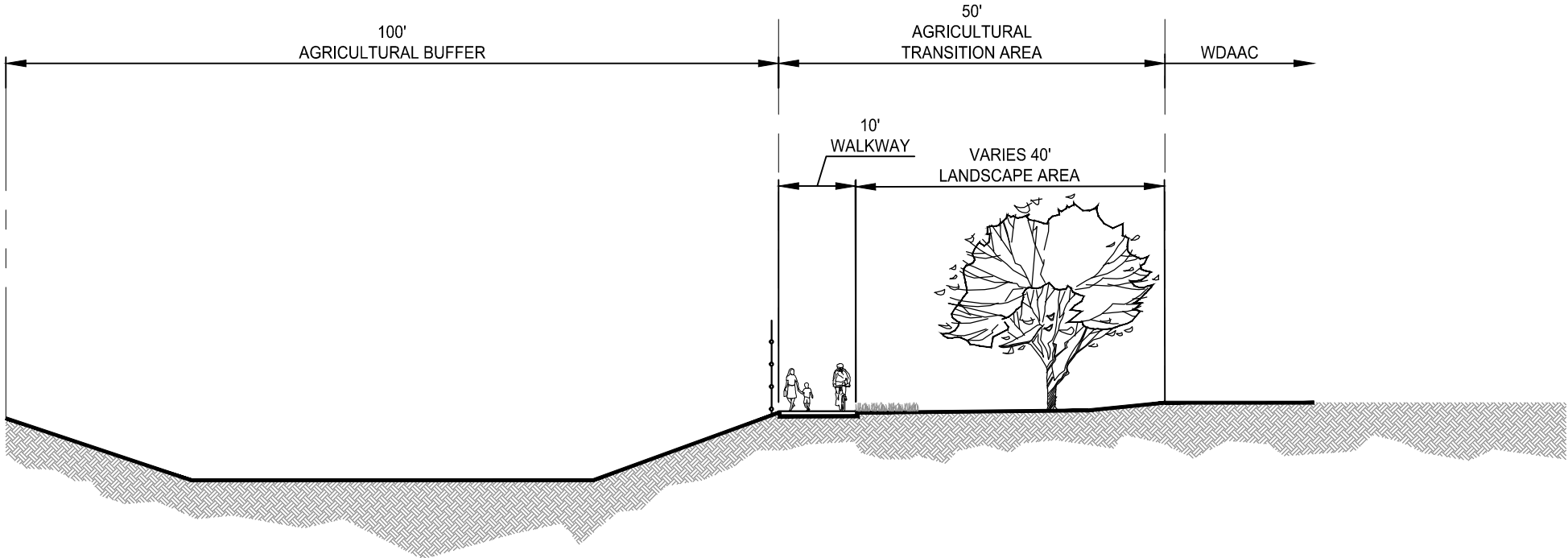
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AGRICULTURAL BUFFERSECTION

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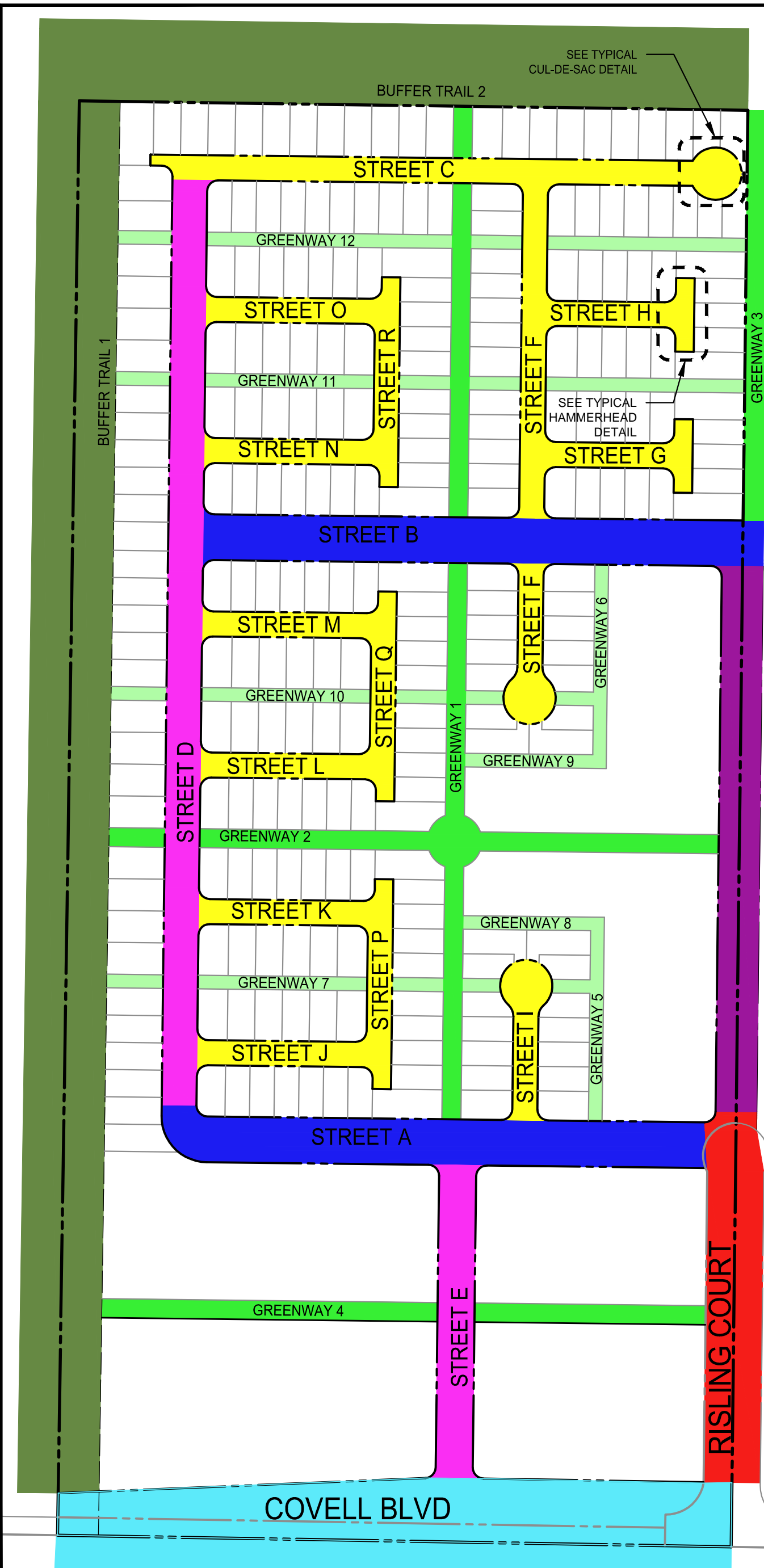
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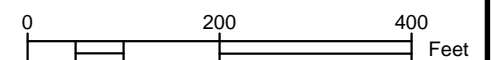
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SEE TYPICAL SECTIONS

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SIDEWALKS AND 7' ON STREET PARKING
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- B** 2 LANE RESIDENTIAL STREET
SIDEWALKS AND 7' ON STREET PARKING
NOT TO SCALE
- C** 2 LANE STREET SECTION
SEPARATED SIDEWALKS AND 12' LANDSCAPE MEDIAN
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- E** 2 LANE STREET SECTION
SEPARATED SIDEWALKS, 7' CLASS 2 BIKE LANE AND 7' ON-STREET PARKING
NOT TO SCALE
- F** COVELL BLVD STREET SECTION
SEPARATED SIDEWALKS, 10' CLASS 2 BIKE LANE, 2 E/B TRAVEL LANES
NOT TO SCALE
- H** 25' MULTIPURPOSE PATHWAY
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- I** 35' MULTIPURPOSE PATHWAY
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NOT TO SCALE



SUTTER DAVIS
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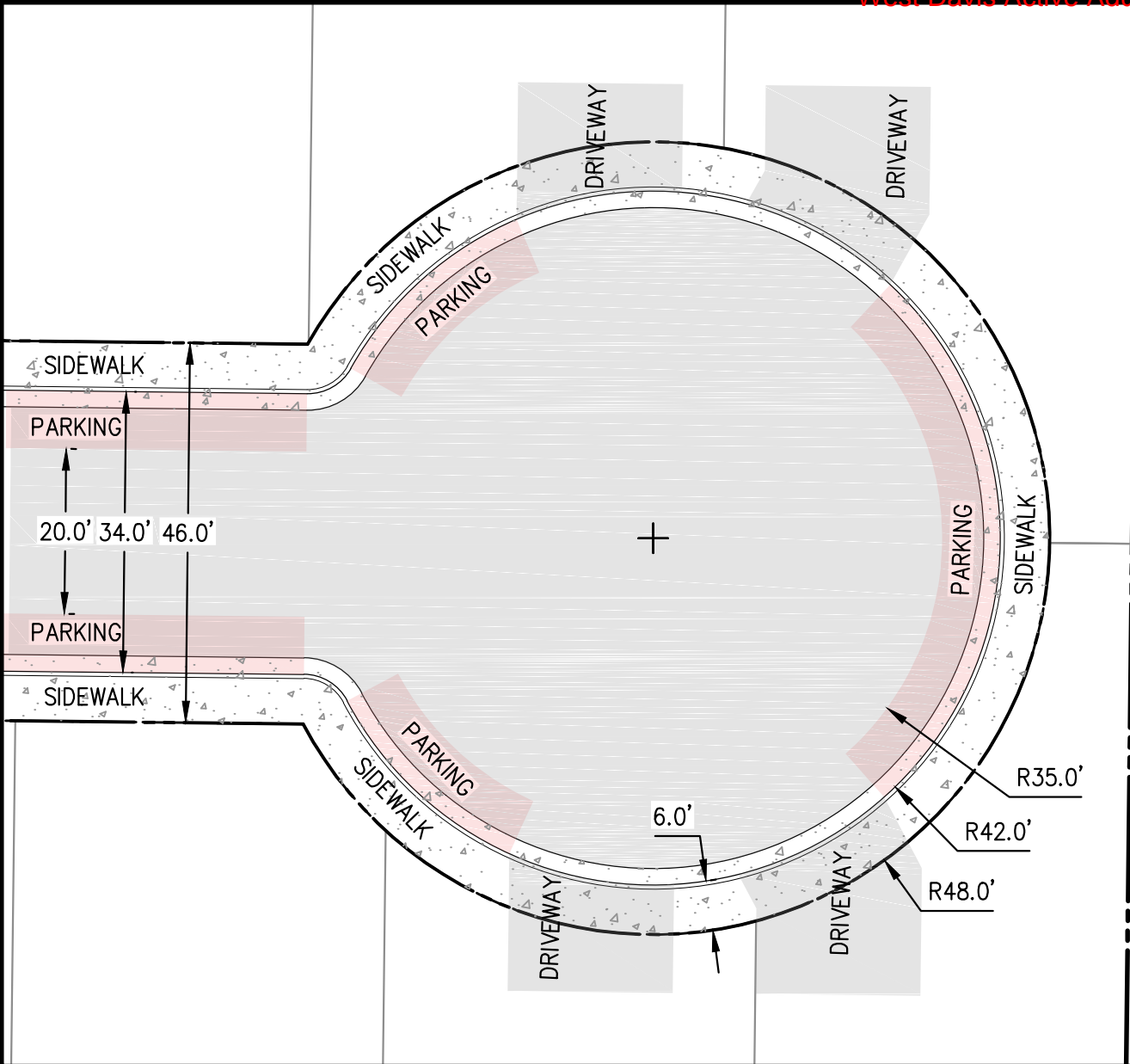
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WEST DAVIS ACTIVE ADULT CENTER
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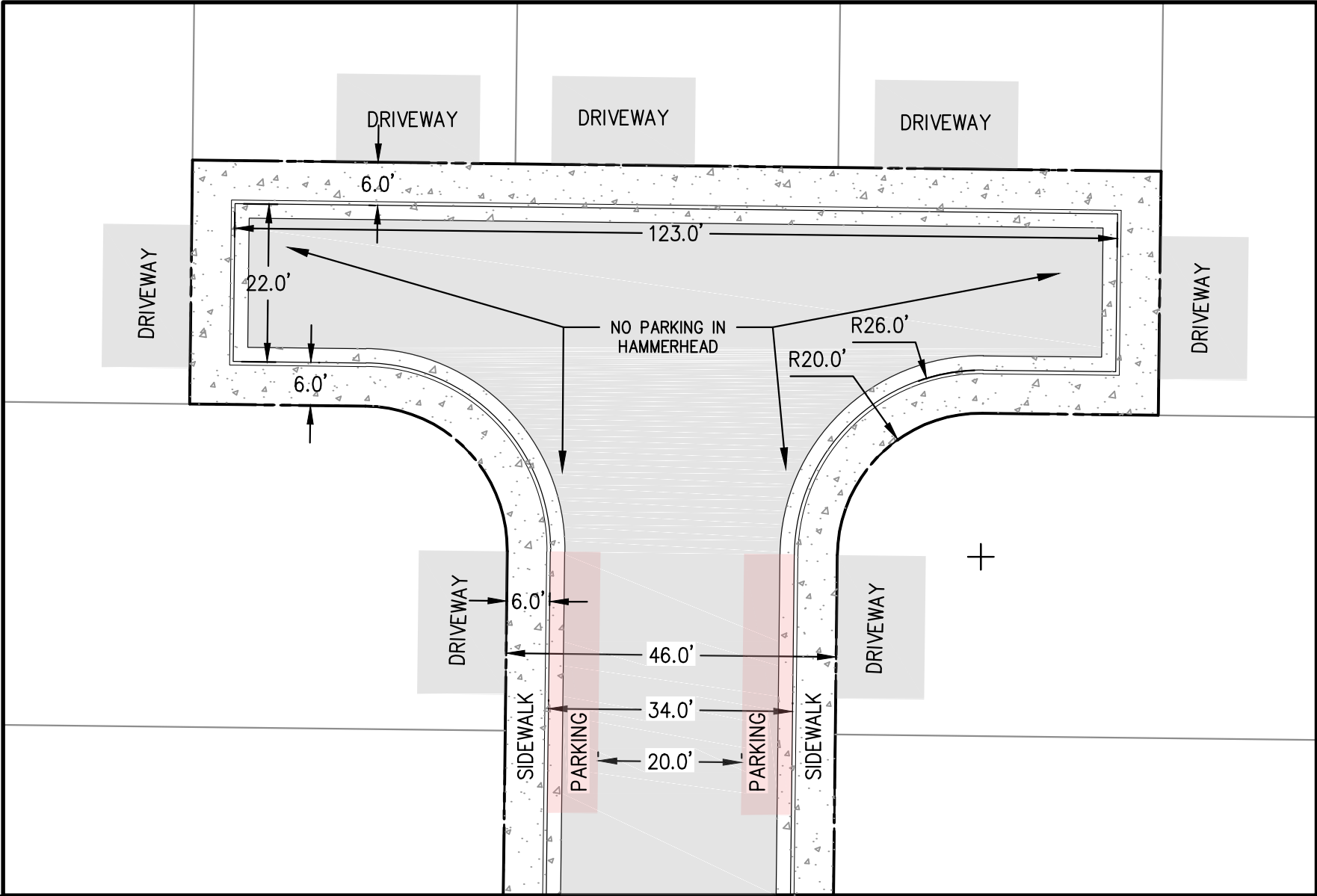
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**WEST DAVIS ACTIVE ADULT CENTER
 TYPICAL HAMMERHEAD**

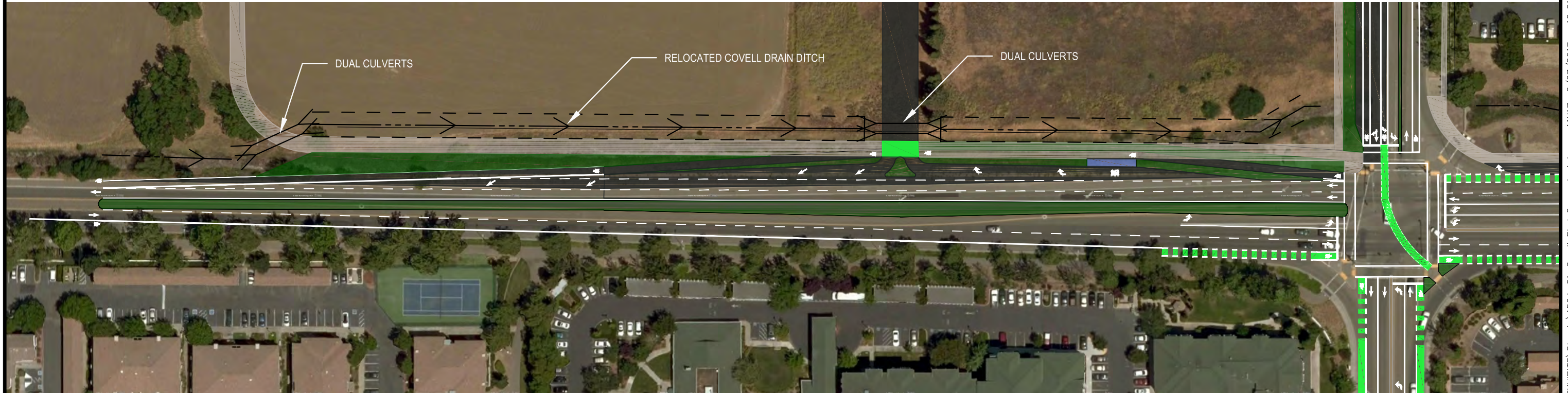
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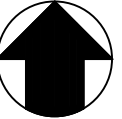
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 (916) 455-2026 (530) 758-2026



 <p style="text-align: right;">CECWEST.COM</p> <p style="text-align: center;">Project Planning ■ Civil Engineering ■ Landscape Architecture</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> ■ Sacramento Office 2120 20th Street, Suite Three Sacramento, CA 95818 (916) 455-2026 </td> <td style="width: 50%; border: none;"> ■ Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026 </td> </tr> </table>	■ Sacramento Office 2120 20th Street, Suite Three Sacramento, CA 95818 (916) 455-2026	■ Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026	PROJECT:	WEST DAVIS ACTIVE ADULT COMMUNITY	
	■ Sacramento Office 2120 20th Street, Suite Three Sacramento, CA 95818 (916) 455-2026	■ Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026			
	DESCRIPTION:	COVELL BOULEVARD CONCEPTUAL DESIGN			
	DATE:	02/27/2017	SHEET 1 OF 1	 NORTH	
	BY:	BF			
JOB NO:	1594.00				
SCALE:	1" = 100'				

RESOLUTION NO. 16-149, SERIES 2016

**RESOLUTION ADOPTING THE 2016 PUBLIC WORKS SECTION V
TRANSPORTATION SYSTEMS DESIGN STANDARDS**

WHEREAS, the City has the goal to update the 1991 Public Works Section V Transportation Systems Design Standards; and

WHEREAS, staff has worked with the Street Standards Advisory Work Group since July of 2015; and

WHEREAS, the Street Standards Advisory Work Group has developed recommendations for incorporation to the adopted standards; and

WHEREAS, the 2016 Public Works Section V Transportation Systems Design Standards will replace the 1991 Public Works Section V Transportation Systems Design Standards in its entirety.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Davis does hereby approve the recommendations in the attached document, and adopt the recommendations as the 2016 Public Works Section V Transportation Systems Design Standards.

PASSED AND ADOPTED by the City Council of the City of Davis this 4th day of October, 2016, by the following vote:

AYES: Arnold, Lee, Swanson, Davis

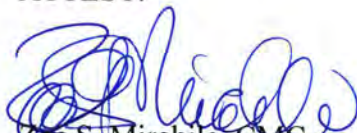
NOES: None

ABSENT: Frerichs



Robb Davis
Mayor

ATTEST:



Zoe S. Mirabile, CMC
City Clerk

Transportation Systems Design Standards Update

Davis Street Standards Advisory Working Group

July 6, 2016

The City of Davis 2016

Transportation Systems Design Standards Update

Prepared by

Davis Street Standards Advisory Working Group

Adopted by Council October 4, 2016

Transportation Systems Design Standards Update

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Reference Documents

The updated transportation systems design standards should reference other pertinent documents as appropriate. These references will reduce conflicts between City and other regulatory standards and will reduce the need to update the City standards when the reference documents are updated. The reference documents in order of precedence are as follows (latest editions or versions):

- a) City of Davis General Plan – Transportation Element
- b) City of Davis Municipal Code
- c) National Association of City Transportation Officials Design Guide
- d) Office of Planning and Research
- e) Caltrans Highway Design Manual (HDM)
- f) California Manual on Uniform Traffic Control Devices (CA MUTCD)
- g) Public Works Standard Specifications
- h) City of Davis Beyond Platinum Bicycle Action Plan
- i) City of Davis Climate Action and Adaptation Plan
- j) Project EIRs, Traffic Studies, and Discretionary Approvals
- k) Other Public Works Design Standards Sections (i.e. Utilities/Electrical Systems)

To keep the new standards current, "Latest Editions" should be the terminology used in the reference rather than a specific year.

Policy: To reduce delays, improve efficiency, and encourage lower speeds, the group recommends signalization interconnects be added to the City's lighting and signalization standards.

Sections and Street Classifications will be as follows:

Sections

- Horizontal Alignment for Streets
- Vertical Alignment for Streets
- Pedestrian Alignments and Accessibility
- Street Structural Design
- Landscape Requirements
- Shared-Use Path and Bicycle Facility Design
- Delineation and Signing

Classifications (as applicable to Sections)

- Major Arterial
- Minor Arterial
- Collector
- Modified Local
- Local
- Rural
- Intersection (includes roundabouts)
- Alley
- Downtown Street
- Cul-de-sac

When possible and appropriate, sections shall be consolidated.

Transportation Systems Design Standards Update

Davis Street Standards Advisory Working Group

July 6, 2016

1) Horizontal Alignments for Streets

a) Geometrics

Table A-1

Table A-1 -Street Classifications

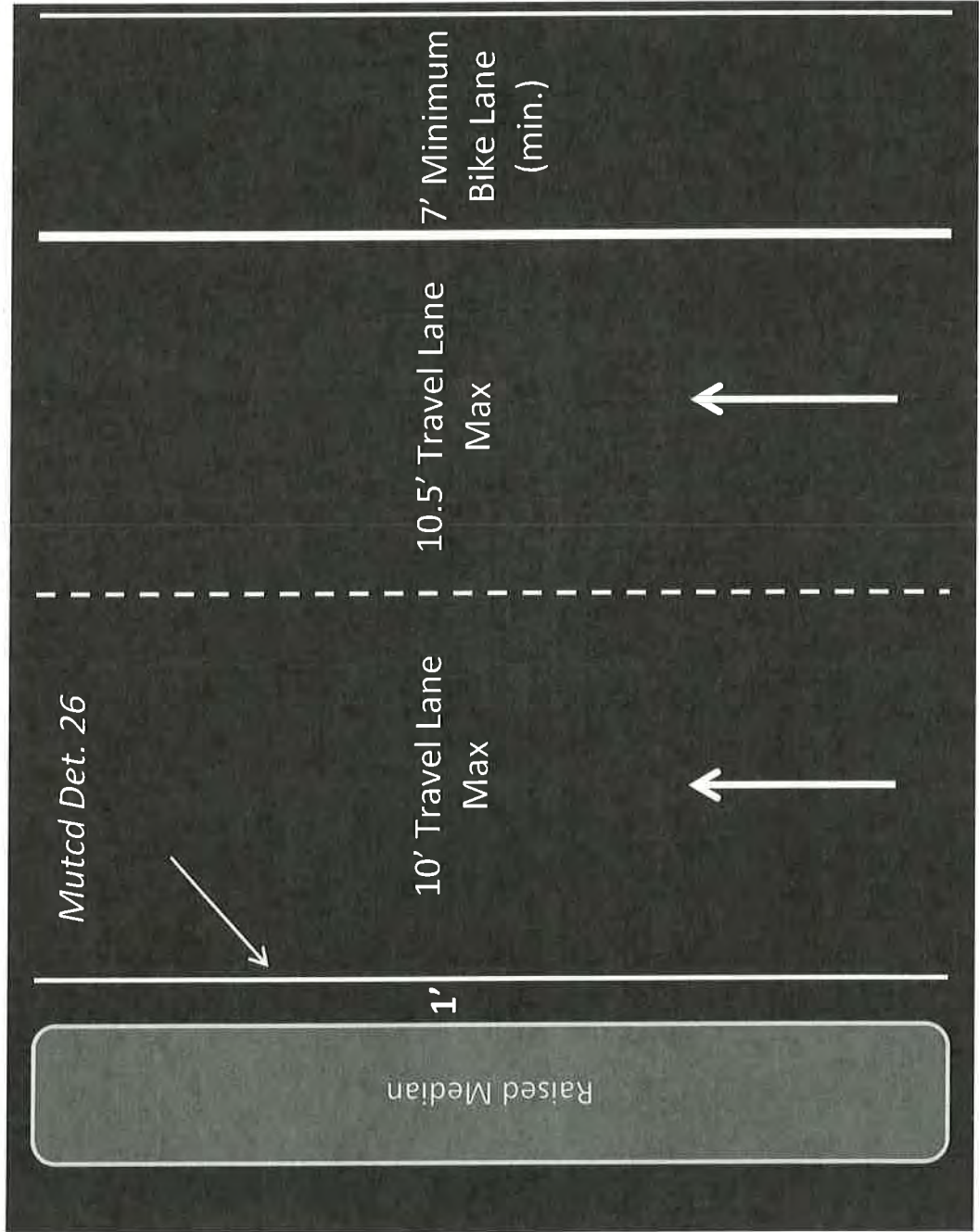
Street Classification :	Major Arterial ⁴	Minor Arterial	Collector	Modified Local	Local	Cul-de-sac	Alley	Downtown Street
Right of Way (ROW) Width	102'-146'	75'	62'	50'	44'	38'	20'	80'
Roadway Width ²	70'-96'	42'-72'	34'-56'	34'-50'	34'-50'	27'	20'	50'
Median Width	16'	Varies	-	-	-	-	-	-
No. of Travel Lanes	4	2	2	2	2	2	-	2
Vehicle Travel Lane Width ¹	See Attached	10'	10'	10'	10'	10'	-	10'
Bike Lane (Class II)	Yes	Yes	Yes	Yes	-	-	-	Yes
Bike Route (Class III)	-	-	Yes	Yes	Yes	-	-	Yes
Bikeway (Class IV)	Yes	Yes	Yes	-	-	-	-	-
Bikeway (Class IV) Width (Min)	7'	7'	7'	-	-	-	-	-
Bikeway (Class IV) Buffer Type	R or F	P, R or F	P, R or F	-	-	-	-	-
Bikeway (Class IV) Buffer Width (Min)	3'	3'	3'	-	-	-	-	-
Bike Lane Width (Min) ¹	7'	7'	7'	-	-	-	-	7'
Parking Lane Width (Max)	7'	7'	7'	7'	7'	7'	-	7'
Sidewalk Width (Min)	6'	6'	6'	6'	6'	6'	-	15'
Landscape Buffer (Min)	6'	6'	4'	-	-	-	-	-
Shared-Use Path?	Yes	Varies	-	-	-	-	-	-
Shared-Use Path Width	12'	12'	-	-	-	-	-	-
Left Turn Lanes Required	Yes	Yes	Varies	Varies	-	-	-	Varies
Left Turn Lane Width	10'-11'	10'	10'	10'	-	-	-	10'
Right Turn Lane Width (Min)	11'	11'	-	-	-	-	-	-
Bike Lane Width with Right Turn Pocket	5'-7'	5'-7'	-	-	-	-	-	-
Design Speed	40 mph	35 mph	30 mph	25 mph	25 mph	20 mph	5 mph	20 mph
Driveway & Street Access	Limited	Limited	Limited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
3ft Bike Lane Buffers ³	Yes	Yes	Yes	-	-	-	-	Yes (Inverted 'T')

1) Add 1' when adjacent to curb 2) Roadway width applies to new roadways. Existing roadway widths may vary. 3) Standard buffer width shall be 3-ft. In constrained areas, buffer width may be reduced to 2-ft with approval from City Engineer.
 4) Buffers must not reduce bike lane width P = Physical barrier for buffered bikeway (Class IV) R = Raised or grade-separated barrier for buffered bikeway (Class IV) F = Flexible barrier for buffered bikeway (Class IV)

Does not apply to the Downtown Core (see Downtown Street classification)



4 Lane Major Arterial



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b) Design Speed and Sight Distance

Design speeds should be equal to the intended speed limit and as follows:

Street Classification	1991 Standards	Street Recommendation	Reduction	Sight Distance
Major Arterial	45	40	5	305'
Minor Arterial	40	35	5	250'
Collector	35	30	5	200'
Modified Local	30	25	5	155'
Local	30	25	5	155'
Cul-de-sac	25	20	5	115'
Alley	n/a	5	-	n/a
Downtown Street	n/a	20	-	115'

Minimum Stopping Sight Distance should be updated based on AASHTO guidelines.

Policy: Special consideration should be given to the design of major and minor arterials to ensure that travel times will be reduced without raising speed limits or creating safety concerns. Roundabouts, traffic circles, and coordinated signal timing is suggested at intersections to improve travel times.

c) Curves

Street Classifications "Alley" and "Downtown Street" shall be added to the current table. The minimum curve radii listed shall meet Caltrans standard for minimum curve radii (HDM Table 203.2).

d) Intersections

i. Basic Intersection Requirements (existing table from 1991 Standards)

- "Driveways" will be changed from a row to a column (spacing will be dependent on roadway classification)
- "Free Right Provisions" column shall be removed
- "Merge Lane Provisions" column shall be removed
- "Stop Control Provisions" column title shall be changed to "Intersection Control Provisions"
- Add "Roundabout" to Intersection Control Provisions for Major Arterial and Minor Arterial street classifications.

ii. Truck Turning Movements

- In addition to the current language, the following text is suggested:

The goal is to minimize conflicts between vehicles, pedestrians, and bicyclists while providing adequate curb radii for the design vehicle. Turning movements for design vehicles at intersections may not be required if the route is restricted. The design vehicle shall be approved by the City engineer.

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iii. *Sight Distance*

- The exhibit for sight distance shall show a shaded area denoting the sight triangle or zone that are to be left clear of obstructions.
- (Similar to the City of Sacramento Street Design Standards Plate 15-24). See Appendix C

iv. *Corner Radius Requirements*

- When design vehicles are turning on to a multi-lane roadway in the direction of travel, the vehicle can utilize all available lanes.
- Use tighter corner radii in order to provide traffic-calming effects and shorten distances for vulnerable pedestrian/bicycle crossings.
- Minimum Radius at right of way column is not needed.

Policy: Curb radii must allow design vehicles to turn from the lane closest to the turning movement and turning across adjacent lanes is not permitted except for emergency vehicle access.

e) *Turn-arounds (Cul-de-sac)*

- Standards for turn-arounds shall meet the City's Fire Code for the maximum travel length.
- The standard details for turn-arounds be consolidated and include a table for different measurements.
- Shared-use paths that terminate and turn-arounds shall include a ramp.
- Include a detail with for landscaping at center of turn-around.

f) *Driveways*

Remove Driveway Type column (redundant). Width shall be 25' max for industrial, and commercial.

g) *Transitions*

- Lane transitions shall be calculated based on design speed consistent with CA MUTCD recommendations.

For speeds 40 mph or less:

$$L = WS^2/60$$

L = Length in feet

S = design speed in mph

W = Offset in feet

- Change "The curb alignment for turn lane transitions shall follow Caltrans standard tapers" to "Lane transitions shall follow CA MUTCD Figure 3B-14(CA)".

2) Vertical Alignments for Streets

No changes recommended. City staff to review and update as necessary.

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3) Pedestrian Alignments and Accessibility

- Current text is outdated and shall be completely revised to reflect current ADA requirements.
- All public and private street designs shall be designed to ADA and Caltrans Standards
- Dual curb ramps shall be used at each street intersection corner unless otherwise approved by Bicycle, Transportation, and Street Safety Committee.
- Case I ramps shall be used at locations with landscape strips.

4) Street Structural Design

No changes recommended. City staff to review and update as necessary.

5) Landscape Requirements

No changes recommended. City staff to review and update as necessary.

Policy: Landscape irrigation shall be contained within landscape areas.

6) Shared-Use Path and Bicycle Facility Design

Define Class IV bikeways and create a specific section for Class IV bikeways.

a) Shared-Use Path Design Requirements

i. Horizontal Alignment

Current Standards reference Caltrans HDM as conformance requirements. HDM Table 1003.1 shall be referenced for bike path design speeds which control horizontal and vertical alignments. Language shall be added to allow review by the City for situations where the HDM cannot be met.

ii. Width

Path width shall be 12 feet minimum, with 2 foot rideable/walkable shoulders. Language shall be added to allow review by City for situations where the 12' path width is not feasible. Use FHWA guidelines and Shared –Use Path Level of Service (LOS) calculations in determining the appropriate path width. This approach can maximize path LOS without overbuilding infrastructure.

iii. Vertical Clearance

Strike this section from the standards, as it is already addressed in the Caltrans HDM.

iv. Vertical Alignment (Grade)

No changes recommended. City staff to review and update as necessary.

v. Cross-Slope and Drainage

No change recommended. City staff to review and update as necessary.

vi. Minimum Section

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Recommend Portland cement concrete in-lieu of hot mix asphalt, if cost is comparable. Update Standard Drawing 301-7.

vii. Lighting

Lighting along shared-use paths shall be LED (5lux to 22lux is an acceptable range for light levels along paths).

Placement of the light standards shall be 1' off of the edge of the shoulder, not the edge of pavement.

viii. Delineation (Striping)

No striping shall be used on the paths except at tunnel and sharp turn approaches. In these locations, reference CA MUTCD guidelines.

ix. Other

Refuse furnishings (trash and recycling) shall be included in path design, however City's Parks and Community Services guidelines may control.

Shared-use paths that end into a sidewalk with vertical curb shall include an ADA curb ramp.

b) Bike Lane Design Requirements

Remove the last sentence from the description, which states "Bike Lanes are considered to be shared lanes with motorized vehicular traffic on all other classifications."

i. Width

Delineation of on-street parking with a stripe between the bike lane and the parking lane shall be mandatory. Buffered bike lanes shall be delineated with a solid stripe adjacent to the bike lane with parking stalls delineated by an *Inverted T*. Bike lanes adjacent to parking shall be 8' in width.

Reference Table A-1 for bike lane widths.

ii. Clearance

No change recommended. City staff to review and update as necessary.

iii. Vertical Alignment

No change recommended. City staff to review and update as necessary.

iv. Cross-Slope

No change recommended. City staff to review and update as necessary.

v. Minimum Section

No change recommended. City staff to review and update as necessary.

vi. Lighting

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No change recommended. City staff to review and update as necessary.

vii. Delineation (Striping)

The bike lane line between the vehicular travel lane and the bike lane shall be a 12" white stripe.

c) Intersections and Street Connections

i. Shared-Use Path Connections – Arterials

The term "standard bike ramp" shall to be clearly defined as Case A with a reference to a standard detail 301-3 with no bollards. Curbs adjacent to the connection shall be painted red to prohibit parking.

ii. Shared-Use Path Connections – Other Streets

Strike the last sentence from this section, which states "Mid-block connections are discouraged due to the conflict of bike traffic entering the street at a right angle to street traffic."

Policy: Traffic control devices (signalized intersections) shall allow for shorter crossing times when actuated by bicyclists (using appropriate bicyclist design speed) and longer times for pedestrians.

d) Grade Separations (Overcrossing or Undercrossing)

In general, the grade separations shall be referred to as undercrossings or overcrossings.

i. Horizontal Alignment

- Strike the second paragraph from this section, which states "Parking lanes and two-way turn lanes on streets which cross a tunnel and may be dropped over the tunnel. Adequate transition distances shall be provided in accordance with these Standards. Parking lanes cannot be eliminated for land uses with high parking demands. Two-way turn lanes cannot be eliminated if there is insufficient transition distance to the nearest intersection(s)."
- Reference shall be made to HDM Chapter 1000 for more guidance on horizontal alignment standards based on design speed.

ii. Clearances

- The minimum undercrossing width shall be 10 feet and a minimum height of eight 8 feet. All lighting fixtures or other physical improvements shall be installed outside of the clearance zone.
- Reference shall be made to HDM 1003.1.3 – *Clearance to Obstructions*

iii. Sight Distance

Sight distance shall be based on HDM 1003.1.11 – *Stopping Sight Distance*. The minimum stopping sight distance based on design speed shall be 125 feet for

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20 miles per hour, 175 feet for 25 mile per hour and 230 feet for 30 mile per hour.

- iv. Slope Requirements
No change recommended. City staff to review and update as necessary
 - v. Lighting
All tunnels shall include LED lighting.
 - vi. Slopes and Retaining Walls
"Break point" shall be revised to "catch point" or "toe of slope". In constrained areas, retaining walls may be required when 2:1 slopes are not feasible. Retaining walls shall require staff approval.
 - vii. Wing Walls
No change recommended. City staff to review and update as necessary.
 - viii. Safety Fencing
 - Fencing shall be placed 1 foot outside the edge of the shoulder of the path, not the edge of pavement. Standards for "railing/fencing" typically requires a vertical drop of 30-inches, not the 24-inches identified in this section.
 - Fencing type shall have no exposed posts facing the path and approved by the City.
 - ix. Drainage
No change recommended. City staff to review and update as necessary
 - x. City Water Main
Strike this section.
 - xi. City Sewer and Storm Drains
Strike this section.
 - xii. Joint Trench Utilities
Strike this section.
- e) Class IV Separated Bikeway
Add Class IV Bikeway as a street classification. Copy and modify Caltrans Design Information Bulletin (DIB) 89 into Davis Street Standards instead of referencing it. See Appendix C.
- i. Horizontal Alignment for Streets
 - Class IV bikeway should be the default for Major Arterials, Minor Arterials, and Collectors
 - A road with a Class IV bikeway and a sidewalk eliminates the need for a shared use path.

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- There shall be a hierarchy of preference where ROW is limited with priority given to the non-motorized modes of travel (i.e. Class IV in lieu of median):
 1. Pedestrian/Bicycle Facilities
 2. Travel Lanes
 3. Medians and Parking

- ii. Class IV Bikeway (Separated Bikeway)
 - Section 2.2 of DIB 89 shall be modified to specify green paint only at high conflict zones and not the rest of the bikeway.

- iii. Class IV Bikeway (Separated Bikeway) Design Criteria
 - Green paint shall be reserved for high conflict zones (i.e. intersections not including driveways)
 - Modify Section 3.1 of DIB 89 to reflect:
 1. Preference for landscaped buffers (i.e. Inflexible Physical Barriers) over other barriers. This treatment shall only be used on streets with low design speeds.
 2. Specify that flexible post type will have to be approved by the City. Instruct that City staff look into higher quality flexible posts for both aesthetic quality, and long-term durability.
 3. Specify that On-Street Parking could include on-street bike parking.
 4. Specify that On-Street Parking shall require an additional 2' door zone buffer between parking and separated bikeway.
 - Section 3.3 shall be modified to be in-line with Davis standard bike lane width. Modify to 7' minimum width for one-way travel when adjacent to a roadway, and 12' minimum width for two-way travel.
 - Section 3.5 shall be modified to "6 inches minimum above the finished grade"
 - With Raised Separated Bikeways at a minimum of 6 inches above finished grade they will be the same elevation as sidewalks. In these cases there should be some barrier between the separated bikeway and the sidewalk.
 - Raised Separated Bikeways will also need a specified curb type. No vertical lip.
 - Davis Street Standards Drawings shall include Cross Sections to illustrate design criteria for Class IV bikeways

f) Landscape Adjacent to Bike Paths (Shared-Use Paths)

Remove this section from the standards.

7) Delineation and Signing

Replace reference to the "Safety Advisory Commission" with "Bicycling, Transportation, and Street Safety Commission".

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a) City of Davis Legends

- Change “Legends” to “Pavement Markings”
- Add a standard pavement marking for all designated bike Loops (currently being developed by others).
- Recommendation to use different colors for pavement markings to differentiate the designated City bike loops.

b) Standard Signs and Stripes

- Replace “Caltrans Traffic Manual” with “California MUTCD”.
- Replace “Traffic Manual” with “CA MUTCD Standards”.
- Match color of designated bike loop signage to pavement marking color (i.e. signs for a bike loop will include the same color as the pavement markings for said bike loop.

c) Installation of Signs

No change recommended. City staff to review and update as necessary.

d) Striping and Signing Requirements

- Reference CA MUTCD Standards and table shall only include City standard markings/striping details.
- All new striping to be thermoplastic.
- Bike lane Detail 39A at intersections: Create a table that recommends different lengths of Detail 39A based on design speed.
- Standard crosswalks shall be a Continental Style Crosswalk.
- Setback for stop bars shall be 8 feet at crosswalks.
- Bike Lane Marking shall be a Helmeted Bicyclist Symbol (CA MUTCD 9C-3).
- An example for striping plans shall be similar to the City of Sacramento’s Plate 15-17. See Appendix C.

e) Mounting Details

- Strike sentence “No more than two signs may be mounted on one pole, except for matched sets.”
- The number of signs per pole shall be decided by the City.
- Parking signs shall be double-sided.

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8) Other Topics

The standards update should address the following topics. Additional sections to the standards may be required:

a) Traffic Controls

- Evaluate whether to use mast arm vs. post traffic signals on a case-by-case basis. In areas where there is less volume traffic preference should be given to median post signals due to cost savings.
- Establish longer crossing times for when bicyclists are detected in bike lanes at intersections based on bicycle design speed.

b) Bike Specifics

- Specify that any speed-bumps created shall have a seamless transition to the road for greater bicyclist comfort and safety.

c) Traffic Calming

- The City's Traffic Calming Program shall be improved and expanded without impacts to bicyclists. (Look to the cities of San Mateo and San Diego for their Traffic Calming Programs).
- Include a list of criteria needed for a neighborhood to apply for a residential intersection to be changed into a neighborhood traffic circle.

d) On-Street Electric Vehicle Charging Stations

Policy: Locations, requirements, and restrictions on electric vehicle parking shall be defined.

g) Transit Facilities

The addition of transit/bus standards shall be included.

i. Bus Stops

- Bus Stops shall be 80 feet in length.
- New bus stops shall be constructed out of concrete.
- The curb for the length of the bus stop be painted red and the bike lane shall have striping Detail 39A.

ii. Managing Bicycle-Bus Conflicts at Bus Stops

- TCRP Report 183 - A Guidebook on Transit-Supportive Roadway Strategies offers guidance on managing bike/bus conflicts. Figure C-2 (Page 177), Illustrative Design Concepts for Accommodating Bus and Bicycle Traffic, shows 5 bus stop designs. Bus stops shall either be designed to reflect the Raised Bike Lane or Exclusive Bike Lane designs.
- Where space allows, the Raised Bike Lane Design is preferred.

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_183.pdf

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e) Miscellaneous/Specific

- Design solutions shall be sensitive to all context, not just vehicular traffic studies.
- Reassess the Drummond intersection project and confirm that the projected traffic requires a large radii.
- A maximum height requirement for fencing along yards fronting streets shall either be established or more strictly enforced.
- Parking limits at bike lane transitions to prevent people from impeding bike lane transition.
- Smooth pavement at manholes
- Limit parking and conflicts with right turning cars and bike lanes