Peck Planning and Development, LLC
Planning Development Economics

August 26, 2021

City of Merced
Planning Division
678 West 18th Street
Merced, CA 95340

Re: Annexation Pre-Application for VST Property

On behalf of the Virginia Smith Trust (VST), attached is the application for Pre-Annexation of the VST project site. We certainly appreciate the work to date and the development of a thoughtful process to review and prioritize annexations. VST has supported this process as a way of reducing the risks of development by clarifying the City's commitment to development, to identify developments that can be successfully completed once they are initiated, and to identify those that have significant community benefits. We appreciate that the City has acknowledged the usage of "readiness" and community benefits as factors in determining which projects should be given high priority. We think that you will find that VST is one of those high-priority projects. Some properties in North Merced, like VST, have already cleared major environmental processing and master planning hurdles, while others have not. As you can see from the attached application and the summary below, the VST project is positioned to move quickly through the entitlement process, successfully annex to the City, and to generate significant community, housing and fiscal benefits.

Project Readiness. As most know, the VST property is contained within the University Community Planning Area that was comprehensively evaluated and approved for development in 2005. A Community Plan already exists as a well as an EIR and an EIS. And, VST, in cooperation with the UC, has already secured a USFWS Biological Opinion for impacts to wetlands and other biological resources and has already mitigated for those impacts. This is an important consideration both for timing, and for compliance with the City's 2008 Memorandum of Understanding with the USFWS which requires that Development Projects show compliance with federal environmental regulations prior to the City committing wastewater treatment capacity. As our application also demonstrates, we have completed extensive engineering and feasibility studies to demonstrate capacity to serve (see Attachment 4). Also, VST is one of only a handful of properties that are contiguous to UC, so VST may annex and develop once the City's UC annexation process is complete under the special annexation provisions of AB 3312. The project is adequately capitalized, with staff and consultants who have successfully completed similar projects elsewhere in California.

Project Compliance with General Plan. Both the City and County explicitly recognize that the development of the University Community area is a priority, and essential for the support of UC. Attachment 8 of the application summarizes many of the important General Plan policies, and how the project complies with those policies.

Community Benefits. It is now fairly well known that development of the VST property will result in a significant scholarship endowment that will generate $8 million to $10 million each year that will be given to Merced County students for college scholarships. The project has many other features and benefits that are noteworthy, including:

1. An affordable housing program and housing development program that prioritizes development of housing for UC staff and students. Over 3,850 dwelling units are planned, with over 2,100 of those units being (now scarce) multifamily units. Attachment 2 details the housing production goals.

2. Less impact on the environment and wise use of infrastructure capacities. The project has committed to the usage of EPA "WaterSense" strategies and water conservation measures that will reduce water use to at least 25 percent below current per-capita City usage. Also, because the project site is actively farmed, development of it as proposed will result in a net reduction in the extraction of groundwater by approximately 475 acre-feet (154.4 million gallons) per year. Further the VST project will discharge 35%-50% less wastewater than the existing developments. Finally, the project will result in a net reduction of vehicles miles travelled and a reduction in some roadway impacts because more staff and students will walk or bike to UC, or will have vehicle trips that are significantly shorter, and on the periphery of the community rather than through it.

3. An affordable housing program that includes a first-time homebuyer and equity sharing program, housing incentives for UC staff, "self-help" housing construction sites, multi-family sites for non-profit housing providers, and others. Attachment 7 details the project's housing programs.

4. Development of a Community Foundation that would fund early childhood development and enrichment programs operated by the MCOE Foundation with a 0.25% real estate transactions tax. Attachment 7 summarizes this benefit.

5. Development of a community sports park, community recreation center, and parks and recreation facilities at a higher rate than the City overall, or for new projects. Attachment 5 shows the parks and features to be included.

6. Development of housing units with design details that will rival the best projects in the Central Valley. Attachment 5 shows the housing styles, architectural treatments, and overall landscaping themes for the project.

7. Development of a "complete" community, with all of the necessary retail shops, offices, parks, transportation facilities, hiking and jogging trails, sports facilities to meet the needs of the project's residents.

8. Development of over 2,400 jobs, as detailed in Attachment 6.

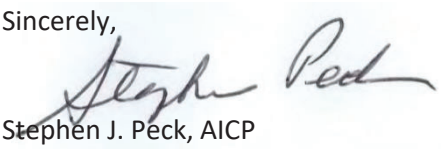
9. The project is also planned to have a police substation and a fire station.

10. Implementation of a key portion of Campus Parkway.

11. A financially feasible project. At full buildout, the project will generate over $8.9 million in City revenues, including $6.7 million in City General Fund revenues, and another $2.2 million in CFD revenues to support police, fire, street maintenance, parks maintenance, airport operations, and special public project amenities. Attachment 11 details the fiscal projections for the project.

Thank you for the opportunity to submit this application and we look forward to reviewing it with the City staff and City Council.

Sincerely,



Stephen J. Peck, AICP

President, Peck Planning and Development, LLC
VST Planner and Project Manager

Attached: Application Form and Attachments

Xc: Scott McBride, Development Services Director
Dr. Steve M. Tietjen, Ed D
Stephanie Dietz, City Manager

ANNEXATION PRE-APPLICATION

CITY OF MERCED
PLANNING DIVISION
678 W. 18th Street
Merced, CA 95340
(209) 385-6858
FAX (209) 725-8775

RECEIPT NO.	PRE-APP NO
FILING FEE	DATE
CHECK NUMBER	RECEIVED BY

Name of Property Owner: Virginia Smith Charitable Trust
Address/City/State/Zip Code: 632 West 13th Street, Merced, CA 95341
Phone:

E-mail: STietjen@MCOE.org

Name of Applicant: Stephen Peck, AICP
Peck Planning and Devolopment, LLC
Address/City/State/Zip Code: 2455 Greenwood Ave. Morro Bay, CA 93442
Phone: 559-731-5778
E-mail: Steve@PeckPlanning.com

Street Address or Location of Property (Be Specific):

Assessor's Parcel Number(s): 060-010-004-000; 060-020-048-000
General Plan Designation: UC Community North
# of Acres: 654

Description of Proposed Project:
Specific Plan for 654 acres, including 4,000 dwelling units, approximately 800,000 SF of commercial/ office space, 76 acres of parks, and 25 acre of open space and trails.

See Checklist on Next Page for Detailed List of Submittal Requirements

SIGN HERE

PROPERTY OWNER'S SIGNATURE (Required)

632 West 13th Street, Merced, CA 95341
PROPERTY OWNER'S ADDRESS

***NOTE:** If the property owner(s) is an LLC or a corporation, the City requires documentation that shows the person(s) who is signing the application is authorized to sign for the LLC or corporation.

Additional Comments/Descriptions:
Project is an update to the adopted University Community Plan. Project plan includes a affordable housing plan (see attached), community benefits plan, update to the University Community Plan. Financial proceeds from the project will be used to fund scholarships and educational enhancements in Merced County.

GENERAL INFORMATION ABOUT ANNEXATION PRE-APPLICATIONS

Annexation Pre-applications are different from regular pre-applications that are only reviewed by City Staff in that Annexation Pre-applications are also reviewed by the City Council and Merced County Local Agency Formation Commission (LAFCO) staff to provide early guidance on annexation requests.

MATERIALS TO SUBMIT (Checklist)

One copy of all required plans or documents below shall be submitted along with the completed application and fee. Any other pertinent information that will assist staff in reviewing your proposal should also be submitted. (A digital copy of all plans or documents in Adobe pdf format shall also be submitted on a CD/DVD or by email; sorry, no flash drives can be accepted.)

- ☐ Boundary Map of Proposed Annexation Area with following:
  - ☐ Identification of properties within the proposed project boundary that are owned/controlled by other than the applicant (if applicable);
  - ☐ Number of acres within the proposed project boundary;
  - ☐ Existing City of Merced General Plan Land Use Designations
  - ☐ Existing Merced County Zoning **See Attachment 1**
- ☐ Conceptual Land Use Plan with Proposed General Plan and Zoning Designations and Accompanying Acreage and Development Capacity for each Proposed Use Type (e.g., number and type of residential units, building square footage for non-residential use types including commercial or industrial development); **See Attachment 2**
- ☐ Project Phasing and Projected Phasing Schedule. Applicants are encouraged to specify a first and one or more subsequent phases to support City Council flexibility in allocating limited City resources to the project; **See Attachment 3**
- ☐ Estimate of Wastewater, Water, and other Infrastructure Demands per Development Phase expressed in equivalent dwelling units and Estimated Demand per development phase; **See Attachment 4**
- ☐ Illustrated Plans/Elevations (if available) and Narrative about Project Design Features that demonstrate quality of design; **See Attachment 5**
- ☐ Estimated Number of Jobs to be created based on accepted job density factors and/or end user-specific information; **See Attachment 6**
- ☐ Description of Community Benefits being offered with Narrative about the need for/basis of the proposed benefits. Examples of community benefits might include construction/funding of infrastructure, public facilities, housing/recreation/job training programs, etc. beyond what development typically provides; **See Attachment 7**
- ☐ Description of Proposal's Consistency with the General Plan and with the Merit Criteria (see page 3); **See Attachment 8**
- ☐ Summary of Applicant/Developer Experience with delivering/facilitating development and representative evidence to support experience such as project photos, site plans, development agreements, entitlement approvals, letters of recommendation, etc.; **See Attachment 9**
- ☐ Project Financing Strategy/Evidence of Existing/Potential Funding; **See Attachment 10**
- ☐ Annexation Pre-Application Fee (See below)
- ☐ Number of Registered Voters within Project Boundary; and, **None**
- ☐ List of Public Services and Utilities being requested from the City and preliminary assessment of how services and utility costs to the City would be funded. **See Attachment 11**
- ☐ (Optional) The LAFCO Justification of Proposal Questionnaire (Below, Pages 4-6)

CREDIT FOR FEE

An Annexation Pre-application review charge will be assessed at the rate indicated on the latest version of the Planning and Development Fee Schedule for a Major Site Plan Review Permit. This charge will be credited against any future annexation application deposit subsequently received from the applicant for the subject project.

ANNEXATION PRE-APPLICATION REVIEW PROCESS

A pre-application may be submitted at any time. Staff will schedule a discussion with the applicant and City staff at a regularly scheduled Development Review meeting on a Thursday afternoon. The applicant will receive a phone call from the Project Planner notifying you of when your project will be reviewed, but generally within 3 to 4 weeks. The applicant will be invited to attend the meeting. After staff review, the pre-application will be scheduled for a regularly scheduled City Council meeting, within 4 to 6 weeks. (No public hearing or notification of adjacent property owners is required.) After receiving City Council and staff comments, it is up to the applicant to file an official development application to proceed with the annexation. For the formal annexation application, the Planning Commission will make a recommendation to City Council and the City Council will make a final decision on whether an annexation application will be made to Merced County LAFCO, which makes the final determination on all annexations. (Fees will be due for the City's application process as well as for the LAFCO application and State of California filing fees.)

GENERAL PLAN ANNEXATION "MERIT CRITERIA"

Merced Vision 2030 General Plan Implementing Action Urban Expansion UE-1.3.g outlines "merit criteria" for evaluating future annexation requests (shown below):

"1.3.g Evaluate future annexation requests against the following conditions:

a) Is the area contiguous to the current City limits and within the City's Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI)? Do the annexed lands form a logical and efficient City limit and include older areas where appropriate to minimize the formation of unincorporated peninsulas?

b) Is the proposed development consistent with the land use classifications on the General Plan Land Use Diagram (Figure 3.1)?

c) Can the proposed development be served by the City water, sewer, storm drainage, fire and police protection, parks, and street systems to meet acceptable standards and service levels without requiring improvements and additional costs to the City beyond which the developer will consent to provide or mitigate?

d) Will this annexation result in the premature conversion of prime agricultural land as defined on the Important Farmland Map of the State Mapping and Monitoring Program? If so, are there alternative locations where this development could take place without converting prime soils?

e) Will a non-agricultural use create conflict with adjacent or nearby agricultural uses? If so, how can these conflicts be mitigated?

f) Does annexation of the area help the City reach one of the following goals?

   1) Does annexation of the area bring the City closer to annexation of the UC Merced campus and University Community?

   2) Does the area contain significant amounts of job-generating land uses, such as industrial, commercial, office, and business/research & development parks?

   3) Does the project provide key infrastructure facilities or other desirable amenities, such as the extension of major roads, utility trunk lines, parks and recreational facilities, etc.?"

LAFCO JUSTIFICATION OF PROPOSAL QUESTIONNAIRE (Optional)

The following questionnaire is part of the application required by the Merced County Local Agency Formation Commission (LAFCO) for annexations. When an official annexation application is filed, the applicants will need to submit answers to this questionnaire. For an Annexation Pre-application, however, answering the questionnaire below is optional but may provide additional information for the City Council to consider.

A. GENERAL INFORMATION
1. Type and designation of proposal (annexation, detachment, sphere of influence amendment, formation, etc., affecting a city or special district):
2. List name(s) and address of applicant (chief petitioner/contact person):
3. Describe the location of the subject territory, including Assessor Parcel Number(s).
4. Why has the proposed action been requested?

B. PHYSICAL FEATURES
1. Land area: Square miles or acres?
2. State general description of topography:
3. Describe any physical or natural features being used to define a boundary of the proposal: (Rivers, mountains, freeways, etc.)
4. Describe drainage basin, rivers, flood control channels, etc. which traverse through the subject territory.
5. Describe major highway access to the area:
6. How is the proposed boundary appropriate in relation to the existing City or Special District boundary?

C. POPULATION AND RELATED MATTERS
1. Population in subject area:
2. Population density (i.e. per square mile, per acre):
3. Number of registered voters:
4. Number of dwelling units:
5. Assessed Valuation (List by Assessor's Parcel Number):
6. Is the subject territory in proximity to the existing developed or developing areas within the City? Please describe.
7. What is the adopted growth rate for your jurisdiction over a 10-20 year horizon? (Please include the source, i.e., General Plan or Merced County Association of Government's projection).
8. Is there enough land within the current City/District limits to accommodate this growth? If not, approximately how much is available?
9. Explain how the proposal will assist the City or County in achieving their fair share of the regional housing needs as determined by the City, County, or Merced County Association of Governments. (See Govt. Code Section 56668)

D. LAND USE
1. Describe the existing land use in the area which is the subject of this proposal:
   a. Indicate existing county general plan designation:
   b. Indicate existing City general plan designation involving City jurisdictions:
2. Amount of publicly owned land in area:
3. Is the proposal consistent with the City General Plan policy, including planned land use designations, densities and other land use and development policy?
   a. What pre-zoning has the City adopted for the affected area? (If the proposal involves annexation to a City)
   b. What is the present zoning in the County?
4. Per SB 244, are there any Disadvantaged Unincorporated Communities (DUCs) adjacent to the annexation area if the annexation area is more than 10 acres?

E. AGRICULTURAL AND OPEN SPACE RESOURCES

1. Would the proposal affect prime agricultural land as defined under Section 56064 of the Cortese-Knox-Hertzberg Act?

NOTE: The applicant or property owner may submit a soil analysis which demonstrates how soil has been degraded to a less than "Prime" classification. The soil analysis should focus on the actual soil rather that the specific crops that may be planted. As an option, the analysis could address the soil and its ability to support crops typically grown in the area on similar soils. The cost of the soil analysis shall be borne by the applicant or property owner.

2. Is the proposal consistent with the adopted open space and conservation policies of the City's General Plan or County General Plan and any applicable Community Specific Plan? Explain.
3. If the proposal involves the conversion of "prime" agricultural land or identified valuable open space land, has the City or County considered alternatives to the annexation which would avoid or reduce such impacts?
4. If the proposal will result in urban development adjacent to existing agricultural lands, has the City or County considered measures to minimize potential conflicts, such as land use *transitions*, buffers or "right-to-farm" notification for future residents?
5. Is the proposal within a Williamson Act Agricultural Reserve? If yes, is the territory under contract? If yes, has non-renewal been requested? If yes, what was the date of request and when does the contract terminate?

F. GOVERNMENTAL SERVICES AND CONTROLS (Plan for Services)

The following matrix and questions are to determine if City services are adequate for both existing and proposed land uses within the subject territory.

1. Police
   a. Submit a map showing the location of the nearest existing and proposed police station.
   b. What are the response times to the proposal area?
   c. Would additional stations, facilities, and staffing be needed to service the affected area? If yes, what mechanisms are in place to fund capital facilities and ongoing service levels?
2. Fire
   a. Submit a map showing the location of the nearest existing and proposed fire station.
   b. What are the response times to the proposed area?
   c. What is the existing Insurance Service Office rating for the proposal area?
   d. Would additional stations, facilities, and staffing be needed to service the affected area? If yes, what mechanisms are in place to fund capital facilities and ongoing service levels?

Water/Sewer/Storm Drainage

	Proposed Service Provider	Current Capacity	Promised Capacity (Other projects)	Remaining Capacity	Project Demand
Water					
Sewer					
Storm Drainage					

3. Water
   a. What improvements are required to serve this annexation?
   b. Describe any factors that could limit the delivery capacity (i.e. storage capacity, transmission lines, etc.)
   c. What funding mechanisms does the City utilize to acquire capacity and when is it implemented?
   d. If additional capacity is required, when will it be available to the annexation area?
   e. Provide a map that depicts the water system in this area.

4. Sewer
   a. What improvements are required to serve this annexation?
   b. Describe any factors that could limit the delivery capacity (i.e. storage capacity, transmission lines, etc.)
   c. What funding mechanisms does the City utilize to acquire capacity, and when is it implemented?
   d. If additional capacity is required, when will it be available to the annexation area?
   e. Provide a map that depicts the affected agency's sewer system in the immediate area.
5. Storm Drainage
   a. What improvements are required to serve this annexation?
   b. Identify the area where storm drainage will be conveyed.
6. Transportation
   a. Designate the names and types of roads which the project will use for primary and secondary access.
   b. Is construction of new access streets necessary? If yes, identify those streets.
   c. What road impacts will occur and what major circulation improvements are needed to serve the proposal?
   d. What is the estimated cost of these improvements (if any) and how will these improvements be financed?
   e. Is public transportation available? How distant?
7. Parks and Recreation
   a. Does the proposed land use plans include parklands?
8. What is the estimated effect of the proposal on the City's ability to provide governmental services and controls to existing incorporated territory?
9. The affected territory *will be taxed or will not be taxed* for existing bonded indebtedness or contractual obligations as set forth by the terms and conditions as stated in the resolution?:

G. OTHER SERVICES

Schools (Only for new residential development).

   a. Provide the name of the District(s), and the current enrollment.
   b. Provide the student generation rate from the proposed development.
   c. Is classroom space is available for the anticipated development?

If not, indicate the method of financing to provide the necessary classroom space.

H. PHASING

1. Does the City's General Plan contain a phasing plan? If so, is this proposal consistent with the Plan and why?
2. How does the phasing plan address the City's ability to provide necessary urban services in an orderly and efficient manner?
3. Have other alternatives been considered which would be more consistent with orderly growth, open space protection and public service efficiency?

I. MUTUAL SOCIAL AND ECONOMIC INTEREST

1. Do any social or economic communities of interest exist within the subject territory including the relationship between any adjacent nearby Cities or special districts, which provide services that may affect the territory?
2. Are there any special districts (including County Service Areas) that will no longer be serving the proposed area following the annexation or reorganization?
3. Is the proposal contiguous with the existing boundaries of the annexing or detaching City or Special District?
4. Does the proposal create islands, corridors, peninsulas or other undesirable boundary characteristics which lead to service inefficiencies and potential land use conflicts?

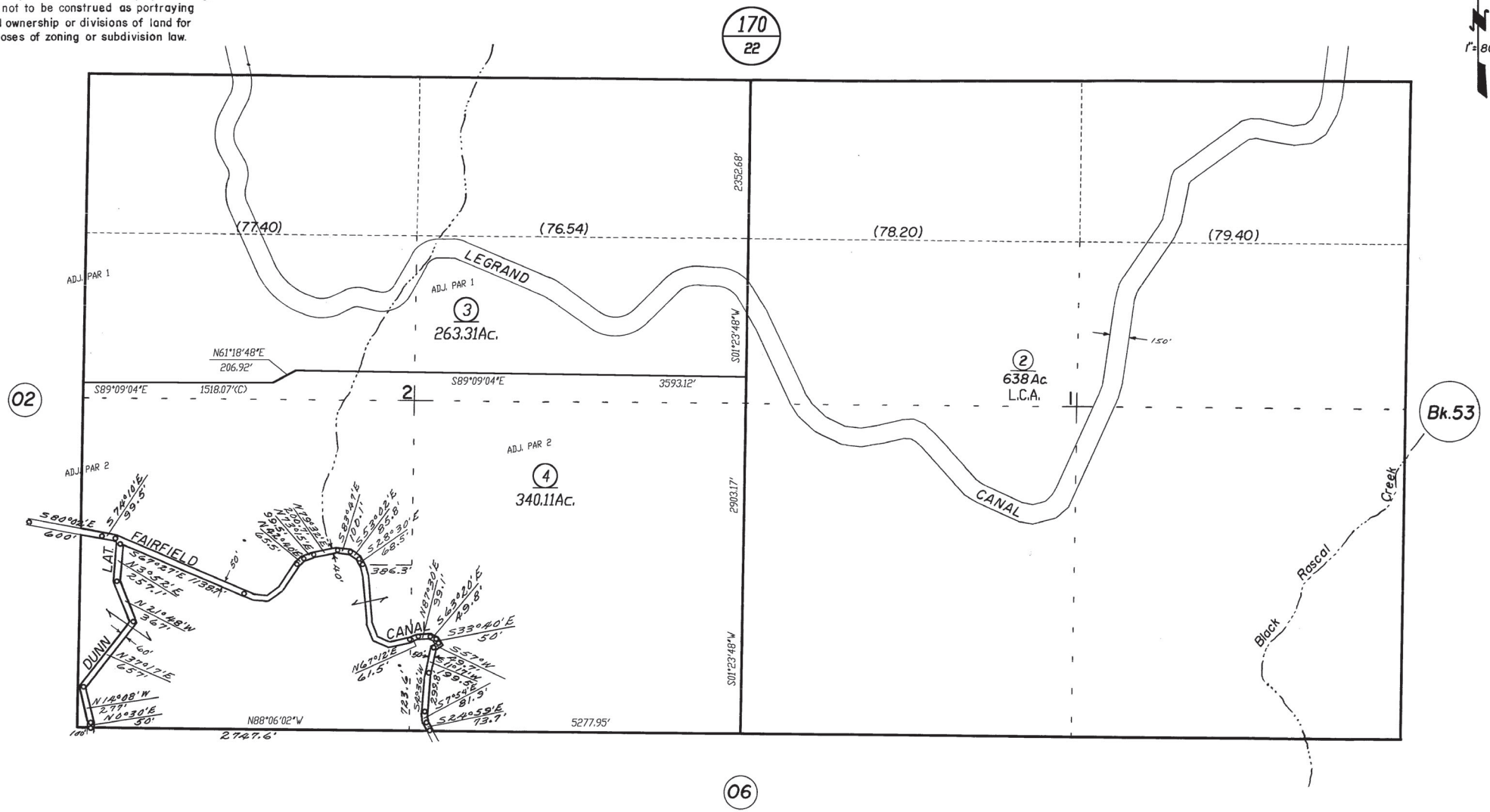
Attachment 1

Boundary Map and City and County
Land Use Maps

T. 7S., R.14E., M.D.B. & M.

Tax Rate Area 110-06 **60-01**

-NOTE-
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.



06

NOTE—Assessor's Block Numbers shown in Ellipses
Assessor's Parcel Numbers shown in Circles

Assessor's Map Bk.60-Pg.01
County of Merced, Calif.
1959

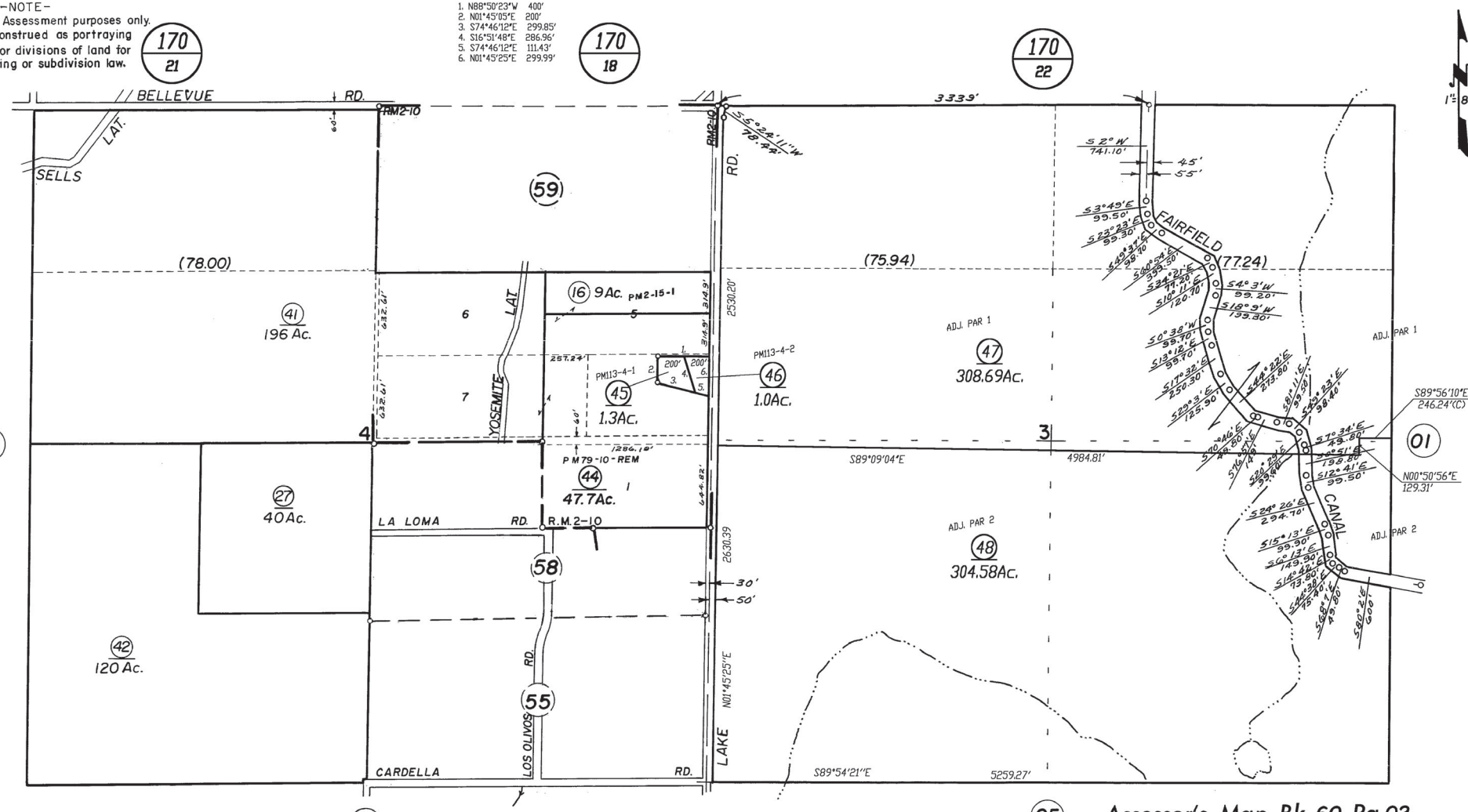
REVISED 8-67
12-30-01
12-30-16

T.7S., R.14E., M.D.B. & M.

Tax Rate Area 83-02 83-28 **60-02**

-NOTE-
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

1. N88°50'23"W 400'
2. N01°45'05"E 200'
3. S74°46'12"E 299.85'
4. S16°51'48"E 286.96'
5. S74°46'12"E 111.43'
6. N01°45'25"E 299.99'



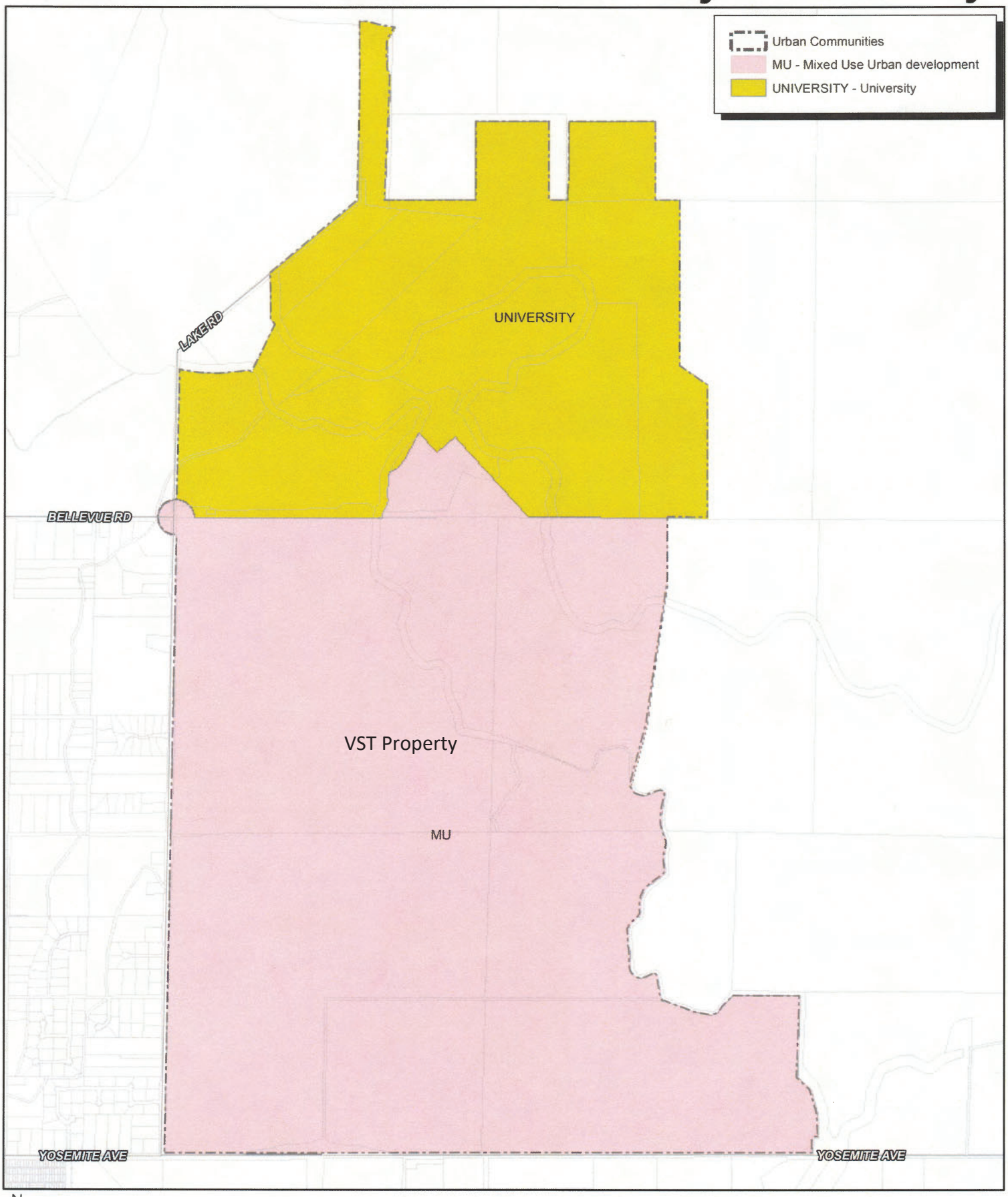
Addition to Yosemite Colony R.M. Bk.2, Pg.10 .

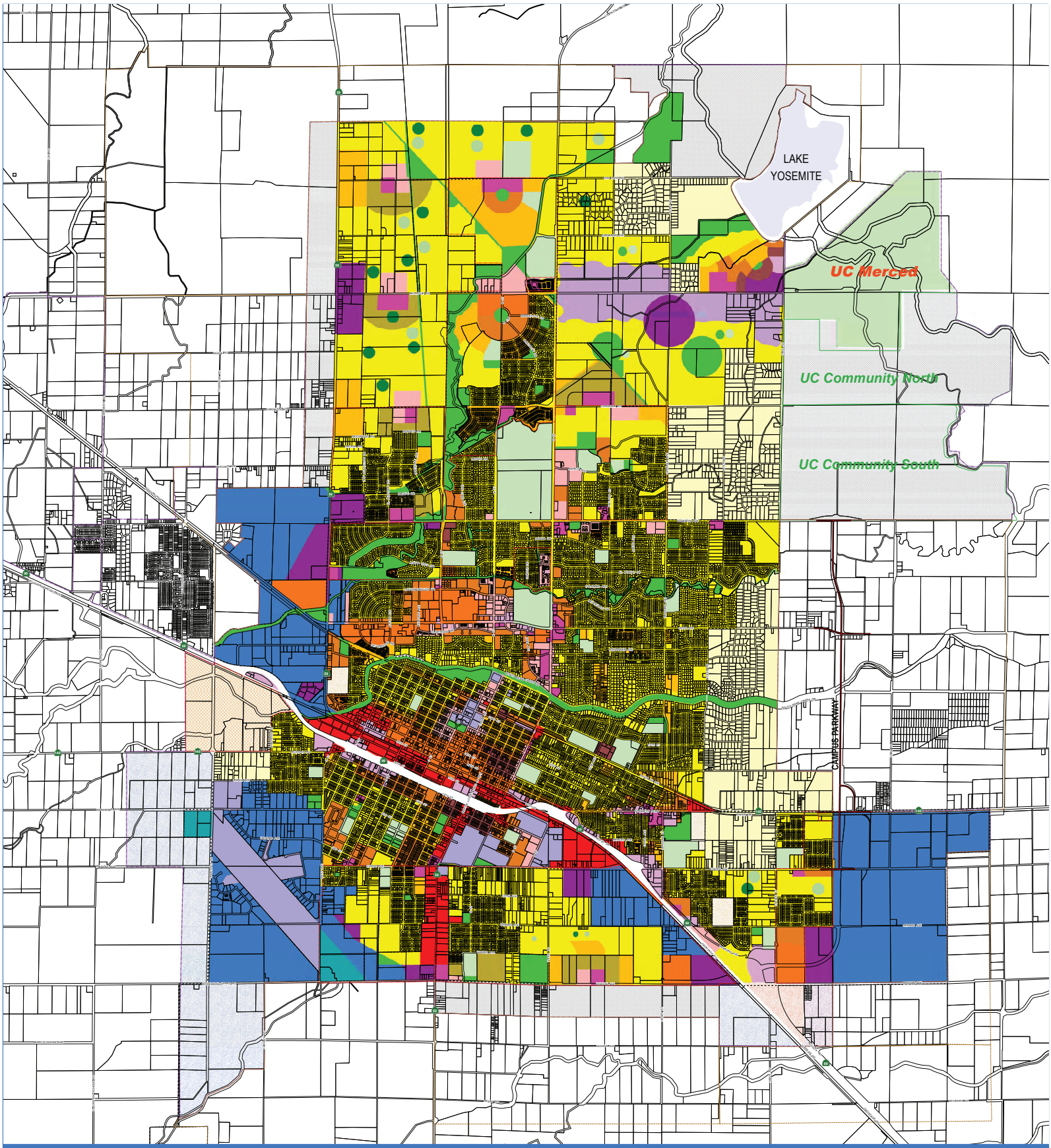
NOTE—Assessor's Block Numbers shown in Ellipses
Assessor's Parcel Numbers shown in Circles

05 *Assessor's Map Bk. 60-Pg.02*
County of Merced, Calif.
1959

REVISED 5-65
8-67
12-68
7/73
1/74
8/81
10-18-13
12-31-16

Urban Communities - University Community





CITY OF MERCED GENERAL PLAN

MERCED DATA SPECIAL SERVICES

Prepared by the
Merced Data
Special Services, Inc.
369 W 18th St
Merced, Ca 95340
(209) 723-3153
FAX (209) 723-0322

- CITY LIMITS
- AREA OF INTEREST
- SUDP / SOI
- SPECIFIC PLAN
- UNIVERSITY COMMUNITY

- BUSINESS PARK
- BUSINESS PARK RESERVE
- THOROUGHFARE COMMERCIAL
- COMMERCIAL RESERVE
- GENERAL COMMERCIAL
- REGIONAL COMMUNITY COMMERCIAL
- NEIGHBORHOOD COMMERCIAL
- COMMERCIAL OFFICE

- SCHOOL
- FLOATING SCHOOL SITE
- PUBLIC / GENERAL USE
- MANUFACTURING INDUSTRIAL
- INDUSTRIAL RESERVE
- AGRICULTURAL
- OPEN SPACE / PARK RECREATION
- FLOATING PARK SITE

- VILLAGE RESIDENTIAL
- LOW DENSITY
- LOW TO MEDIUM DENSITY
- HIGH TO MEDIUM DENSITY
- HIGH DENSITY
- RURAL RESIDENTIAL
- MOBILE HOME PARK RESIDENTIAL
- RESIDENTIAL RESERVE

- MIXED USE
- COMMUNITY PLAN

N W E S

2,000 1,000 0 2,000 4,000 Feet

August 21, 2015

A	01

Peck Planning and Development

Overview

Project Location and Overview

Virginia Smith Trust

Land Plan

REVISIONS		
	6/15/2020	REMARKS
1	06/26/2020	Site Plan submitted to City and County
2	07/02/2021	Revised Site Plan with Campus Parkway
3	--/--/--	--
4	--/--/--	--
5	--/--/--	--

Attachment 2

Conceptual Land Use Plan
and Development Capacities by Phase

Project Location and Overview
Virginia Smith Trust
Land Plan
Overview
01
R-1 Low (12,500 SF)
R-1 Low Medium (7,000 SF)
R-1 Medium (5,000 SF)
R-2 (Cluster)
R-3
R-4
Parks
Open Space
Commercial/Office
Water
Schools
1"=500'
Meyers Gate Road
Cardella Road
Kibby Road
Center Street
Golden Bobcat Avenue
University Avenue
Campus Parkway
Bellevue Road
Virginia Smith Parkway
Saddle Road
Yosemite Avenue

					Phase 1							
Residential (Units)	**Unit Size**	**Density/Gross Acre**	**Density/Net Acre**	**PPH (Per 18.40.040)**	**1A**	**1B**	**1C**	**1D**	**1E**	**Total**	**Acres**	**Share of Housing**
R-1 Low (12,500)	3,250	2.50	3.48	3.18	43	20				**63**	**25.20**	**2.5%**
R-1 Low-Medium (7000)	2,750	4.25	6.22	3.18		49			85	**134**	**31.53**	**5.3%**
R-1 Medium (5000)	2,000	6.00	8.71	3.18		157		141	101	**399**	**66.50**	**15.7%**
R-1 Medium (5000, Cluster/Alley)	1,900	6.25	8.71	3.18	66					**66**	**10.56**	**2.6%**
R-2 (Cluster)	1,600	8.75	9.17	2.51	36		64	24	131	**255**	**29.14**	**10.0%**
R-3 For Sale	1,400	16.50	18.00	1.88			160			**160**	**9.70**	**6.3%**
R-3 For Rent	1,050	16.50	18.00	1.88			204			**204**	**12.36**	**8.0%**
R-4 Student (60%)	850	28.00	30.00	4.00	418		274			**692**	**24.71**	**27.2%**
R-4 Market (40%)	975	28.00	30.00	1.88	278		182			**460**	**16.43**	**18.1%**
Town Center Mixed Use	775	35.00	35.00	1.88			108			**108**	-	**4.3%**
Subtotal-Residential Units					**841**	**226**	**992**	**165**	**317**	**2,541**	**226.14**	**100.0%**
Market Rate SF					**949,100**	**513,750**	**1,034,650**	**320,400**	**645,350**	**3,463,250**		
Population					**2,632**	**719**	**2,486**	**509**	**920**	**7,265**		
Average Net Density					**26.08**	**7.71**	**24.80**	**8.78**	**8.23**	**20.60**		
Average Gross Density					**24.17**	**5.31**	**23.30**	**6.40**	**6.67**	**18.81**		
Average SF Density (R1/R2)					**5.76**	**5.31**	**8.75**	**6.40**	**6.67**	**6.29**		
Average MF Density (R3, R4, TC)					**28.00**		**24.30**			**25.89**		
Commercial (Bldg. SF)												**FAR**
Retail Mixed (Main Street/Town Center)							275,000	32,500		**307,500**	**12.28**	**0.57**
Hotel/Office							275,000			**275,000**	**7.62**	**0.83**
NC/Retail					50,000					**50,000**	**3.63**	**0.32**
Community Commercial								175,000		**175,000**	**11.90**	**0.34**
Subtotal-Commercial					**50,000**	-	**550,000**	**207,500**	-	**807,500**	**35.43**	**0.52**
Public and Institutional (Acres)												
Parks										-		
Linear Park					1.23	4.16		1.40	4.50	11.29	**11.29**	
Private Park					1.88		5.79			7.67	**7.67**	
Public Park					2.14	3.48		7.30	9.76	22.68	**22.68**	
Subtotal-Parks					**5.25**	**7.64**	**5.79**	**8.70**	**14.26**	**41.64**	**41.64**	
LP Area for Parks @			**25.0%**		**0.31**	**1.04**	-	**0.35**	**1.13**	**2.82**		
Recreation Area for Schoc			**25.0%**		-	-	-	-	**3.72**	**3.72**		
Area for Recreation					**5.56**	**8.68**	**5.79**	**9.05**	**19.11**	**48.19**		
Park Area/1,000					**2.11**	**12.08**	**2.33**	**17.79**	**20.76**	**6.63**		
Backbone Roads					10.58	6.52	12.92	6.17	6.17	42.36	**42.36**	
Water					1.50	4.20				5.70	**5.70**	
Ponding Basin										-	-	
WWTP										-	-	
Other/Misc										-	-	
Schools									14.89	**14.89**	**14.89**	
Subtotal-Other					**12.08**	**10.72**	**12.92**	**6.17**	**21.06**		**62.95**	
Total											**366.16**	

ATTACHMENT 2 PAGE 8 OF 8

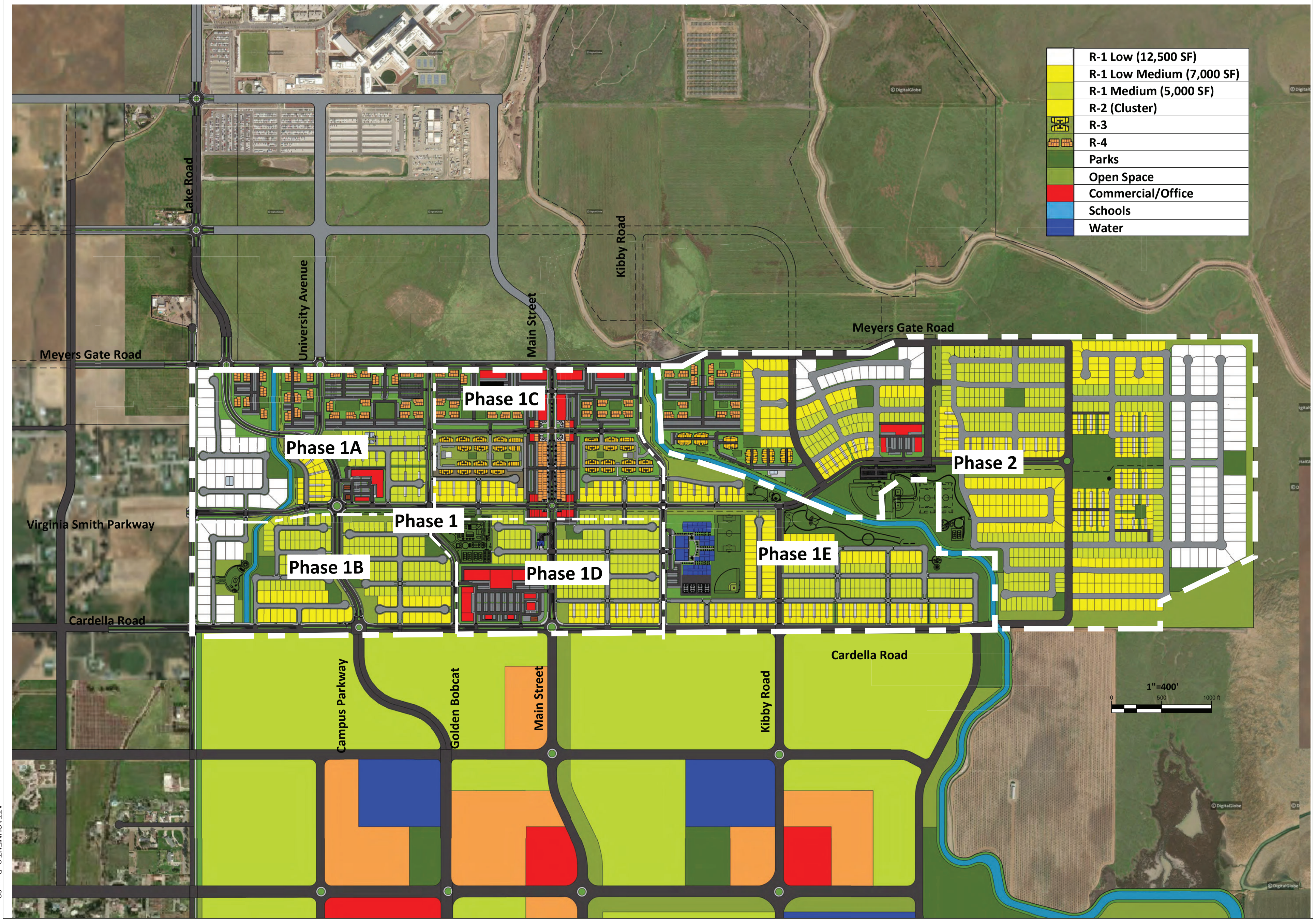
					Phase 2					
Residential (Units)	**Unit Size**	**Density/Gross Acre**	**Density/Net Acre**	**PPH (Per 18.40.040)**	**2A**	**2B**	**2C**	**2D**	**Total Units**	**Acres**
R-1 Low (12,500)	3,250	2.50	3.48	3.18	**21**		**64**		**85**	**34.00**
R-1 Low-Medium (7000)	2,750	4.25	6.22	3.18	**54**	**56**	**113**		**223**	**52.47**
R-1 Medium (5000)	2,000	6.00	8.71	3.18	**58**	**174**	**62**		**294**	**49.00**
R-1 Medium (5000, Cluster/Alley)	1,900	6.25	8.71	3.18			**13**		**13**	**2.08**
R-2 (Cluster)	1,600	8.75	9.17	2.51	**30**	**97**	**98**		**225**	**25.71**
R-3 For Sale	1,400	16.50	18.00	1.88	**70**				**70**	**4.24**
R-3 For Rent	1,050	16.50	18.00	1.88	**70**				**70**	**4.24**
R-4 Student (60%)	850	28.00	30.00	4.00				**202**	**202**	**7.21**
R-4 Market (40%)	975	28.00	30.00	1.88				**134**	**134**	**4.79**
Town Center Mixed Use	775	35.00	35.00	1.88					-	-
Subtotal-Residential Units					**303**	**327**	**350**	**336**	**1,316**	**183.75**
Market Rate SF					**552,250**	**657,200**	**824,250**	**302,350**	**2,336,050**	
Population					**761**	**975**	**1,047**	**1,060**	**3,844**	
Average Net Density					**12.24**	**8.42**	**7.08**	**30.00**	**14.45**	
Average Gross Density					**10.57**	**6.52**	**5.57**	**28.00**	**12.68**	
Average SF Density (R1/R2)					**3.83**	**6.52**	**5.57**		**5.92**	
Average MF Density (R3, R4, TC)								**28.00**	**24.62**	
Commercial (Bldg. SF)										
Retail Mixed (Main Street/Town Center)									-	
Hotel/Office									-	
NC/Retail					**54,500**				**54,500**	**3.62**
Community Commercial									-	
Subtotal-Commercial					**54,500**	-	-	-	**54,500**	**3.62**
Public and Institutional (Acres)										
Parks										
Linear Park					**2.21**	**6.26**			**8.47**	**8.47**
Private Park					**0.80**			**1.56**	**2.36**	**2.36**
Public Park					**8.00**	**4.68**	**10.51**		**23.19**	**23.19**
Subtotal-Parks					**11.01**	**10.94**	**10.51**	**1.56**	**34.02**	**34.02**
LP Area for Parks @			**25.0%**		**0.55**	**1.57**	-	-	**2.12**	
Recreation Area for Schoc			**25.0%**		-	-	-	-	-	
Area for Recreation					**11.56**	**12.51**	**10.51**	**1.56**	**36.14**	
Park Area/1,000					**15.19**	**12.83**	**10.03**	**1.47**	**9.40**	
Backbone Roads					**15.60**	**11.86**				**27.46**
Water					**5.28**	**4.56**				**9.84**
Ponding Basin										-
WWTP										-
Other/Misc										**7.50**
Schools										-
Subtotal-Other					**20.88**	**16.42**	-	-		**44.80**
Total										**266.19**

ATTACHMENT 2 PAGE 9

					Total		
Residential (Units)	**Unit Size**	**Density/Gross Acre**	**Density/Net Acre**	**PPH (Per 18.40.040)**	**Total**	**Acres**	**Share**
R-1 Low (12,500)	3,250	2.50	3.48	3.18	**148**	**59.20**	**3.8%**
R-1 Low-Medium (7000)	2,750	4.25	6.22	3.18	**357**	**84.00**	**9.3%**
R-1 Medium (5000)	2,000	6.00	8.71	3.18	**693**	**115.50**	**18.0%**
R-1 Medium (5000, Cluster/Alley)	1,900	6.25	8.71	3.18	**79**	**12.64**	**2.0%**
R-2 (Cluster)	1,600	8.75	9.17	2.51	**480**	**54.86**	**12.4%**
R-3 For Sale	1,400	16.50	18.00	1.88	**230**	**13.94**	**6.0%**
R-3 For Rent	1,050	16.50	18.00	1.88	**274**	**16.61**	**7.1%**
R-4 Student (60%)	850	28.00	30.00	4.00	**894**	**31.93**	**23.2%**
R-4 Market (40%)	975	28.00	30.00	1.88	**594**	**21.21**	**15.4%**
Town Center Mixed Use	775	35.00	35.00	1.88	**108**	**-**	**2.8%**
Subtotal-Residential Units					**3,857**	**409.89**	**100.0%**
Market Rate SF					**5,799,300**		
Population					**11,109**	**5,843**	
Average Net Density					**18.50**		
Average Gross Density					**16.72**		
Average SF Density (R1/R2)					**6.11**		
Average MF Density (R3, R4, TC)					**25.60**		
Commercial (Bldg. SF)							**FAR**
Retail Mixed (Main Street/Town Center)					**307,500**	**17.20**	
Hotel/Office					**275,000**	**7.62**	**0.83**
NC/Retail					**104,500**	**7.25**	**0.33**
Community Commercial					**175,000**	**11.90**	**0.34**
Subtotal-Commercial					**862,000**	**43.97**	**0.45**
Public and Institutional (Acres)							
Parks							
Linear Park						**19.76**	
Private Park						**10.03**	
Public Park						**45.87**	
Subtotal-Parks					**75.66**	**75.66**	
LP Area for Parks @			**25.0%**		**4.94**		
Recreation Area for Schoo			**25.0%**		**3.72**		
Area for Recreation					**84.32**		
Park Area/1,000					**7.59**		
Backbone Roads						**69.82**	
Water						**15.54**	
Ponding Basin						**-**	
WWTP						**-**	
Other/Misc						**7.50**	
Schools						**14.89**	
Subtotal-Other						**107.75**	
Total						**632.35**	

Attachment 3

Project Phasing Plan and Schedule



	Date	Remarks
	6/25/2020	
1	06/26/2020	Site Plan submitted to City and County
2	07/02/2021	Revised Site Plan with Campus Parkway
3	--/--/----	...
4	--/--/----	...
5	--/--/----	...

REVISIONS

Virginia Smith Trust
Land Plan

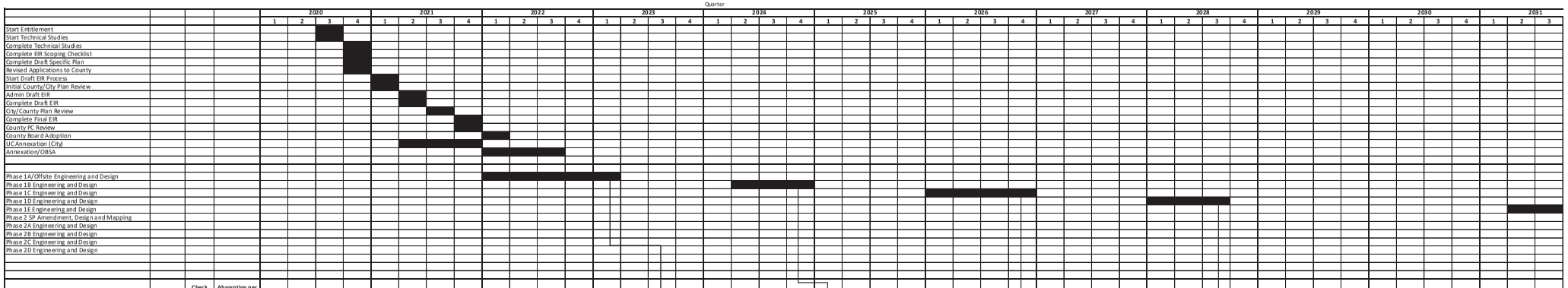
Peck Planning and Development

A 02

		Phase 1										Phase 2							
	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
R-1 Single Family	**1,826**	96	138	72	72	58	42	132	88	114	115	132	118	120	120	132	126	108	45
R-4 Student	**975**	120	120	146	150	150	69	38				38	145						
R-3/R-4 Market	**1,017**	120	120	146	150	150		38				38	145	111					
Town Center Mixed Use-Residential	**108**					90	18												
Subtotal	**3,925**	**336**	**378**	**363**	**372**	**448**	**129**	**207**	**88**	**114**	**115**	**207**	**408**	**231**	**120**	**132**	**126**	**108**	**45**
Retail Mixed	**307,500**				61,500	61,500	61,500	61,500	61,500										
Neighborhood/Community Retail	**279,500**	50,000						175,000				54,500							
Hotel/Office	**275,000**				55,000	55,000	55,000	55,000	55,000										
Subtotal	**862,000**	**50,000**	-	-	**116,500**	**116,500**	**116,500**	**291,500**	**116,500**	-	-	**54,500**	-	-	-	-	-	-	-

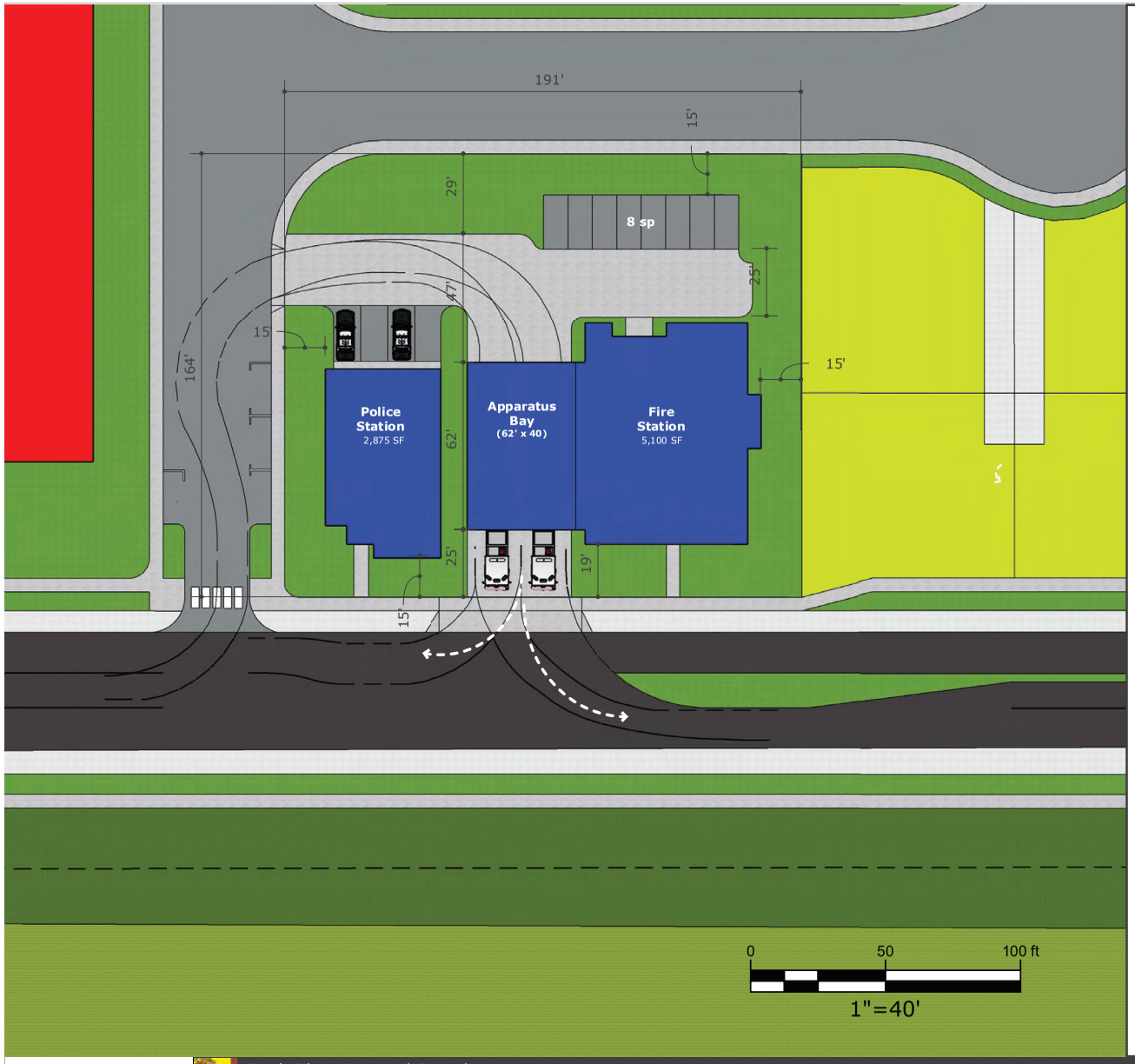
	Land Plan	Check Total	Absorption per Quarter	2025				2026				2027				2028				2029			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Residential Buildout	Units	Units	Units																				
Phase 1A																							
Land Development/Offsites																							
R-1-12.5	43	43	6.0					6	6.0	6.0	6.0	6	6.0	6.0	1.0								
R-1-7	0	-	10.5																				
R-1-5	66	66	10.5					10.5	10.5	10.5	10.5	10.5	10.5	3.0									
R-2	36	36	7.5					7.5	7.5	7.5	7.5	6											
R-3	0	-	45.0																				
R-4	696	696	60.0					60	60.0	60.0	60.0	60	60.0	60.0	60.0	60	60.0	60.0	96.0				
Phase 1B																							
Land Development/Offsites																							
R-1-12.5	20	20	6.0												5.0	6	6.0	3.0					
R-1-7	49	49	10.5									10.5	10.5	10.5	10.5	7							
R-1-5	157	157	10.5									10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
R-2	0	-	7.5																				
R-3	0	-	45.0																				
R-4	0	-	60.0																				
Phase 1C																							
Land Development/Offsites																							
R-1-12.5	0	-	6.0																				
R-1-7	0	-	10.5																				
R-1-5	0	-	10.5																				
R-2	64	64	7.5																7.5	7.5	7.5	7.5	7.5
R-3	364	364	30.0																30	30	30	30	30
R-4	456	456	45.0																45	45	45	45	45
Town Center	108	108	20.0																				
Phase 1D																							
Land Development/Offsites																							
R-1-12.5	0	-	6.0	0	0	0	0	0	0	0	0												
R-1-7	0	-	10.5																				
R-1-5	141	141	10.5																				
R-2	24	24	7.5																				
R-3		-	30.0																				
R-4		-	45.0																				
Phase 1E																							
Land Development/Offsites																							
R-1-12.5	0	-	6.0																				
R-1-7	85	85	10.5																				
R-1-5	101	101	10.5																				
R-2	131	131	7.5																				
R-3		-	30.0																				
R-4		-	45.0																				
Phase 2																							
Land Development/Offsites																							
R-1-12.5	85	85	6.0																				
R-1-7	223	223	10.5																				
R-1-5	307	307	10.5																				
R-2	225	225	9.0																				
R-3	140	140	30.0																				
R-4	336	336	45.0																				
Total	**3,857**	**3,857**		**0**	**0**	**0**	**0**	**84**	**84**	**84**	**84**	**103.5**	**97.5**	**90**	**87**	**83.5**	**76.5**	**73.5**	**129**	**93**	**93**	**93**	**93**
MF Total	**2,196**	**2,196**		**0**	**0**	**0**	**0**	**78**	**78**	**78**	**78**	**76.5**	**60**	**60**	**60**	**60**	**60**	**60**	**118.5**	**75**	**75**	**75**	**75**
SF Total	**1,661**	**1,661**		-	-	-	-	**6.0**	**6.0**	**6.0**	**6.0**	**27.0**	**37.5**	**30.0**	**27.0**	**23.5**	**16.5**	**13.5**	**10.5**	**18.0**	**18.0**	**18.0**	**18.0**
Projected Citywide Demand/Permits																							
MF	5,000			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
VST MF Market Penetration	43.9%			0.0%	0.0%	0.0%	0.0%	78.0%	78.0%	78.0%	78.0%	76.5%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	118.5%	75.0%	75.0%	75.0%	75.0%
SF	14,875			125	125	125	125	125	125	125	125	150	150	150	150	150	150	150	150	150	150	150	150
VST SF Market Penetration	11.2%			0.0%	0.0%	0.0%	0.0%	4.8%	4.8%	4.8%	4.8%	18.0%	25.0%	20.0%	18.0%	15.7%	11.0%	9.0%	7.0%	12.0%	12.0%	12.0%	12.0%
Projected Citywide Total Permits	19,875			225	225	225	225	225	225	225	225	250	250	250	250	250	250	250	250	250	250	250	250
Assumed Market Penetration	19.4%			0.0%	0.0%	0.0%	0.0%	37.3%	37.3%	37.3%	37.3%	41.4%	39.0%	36.0%	34.8%	33.4%	30.6%	29.4%	51.6%	37.2%	37.2%	37.2%	37.2%
Commercial Buildout	**Square Feet**	**Square Feet**																					
Retail Mixed (Main Street/Town Center)	307,500	307,500																					
Hotel/Office	275,000	275,000																		68,750	68,750	68,750	68,750
C./Retail	104,500	104,500													50,000								
Community Commercial	175,000	175,000																					
Total	**862,000**	**862,000**		-	-	-	-	-	-	-	-	-	-	-	**50,000**	-	-	-	-	**68,750**	**68,750**	**68,750**	**68,750**

ATTACHMENT 2-Page 24



	Land Plan	Check Total	Absorption per Quarter
Phase 1A			
Land Development/Offsites			
R-1-12.5	43	43	6.0
R-1-7	0	-	10.5
R-1-5	66	66	10.5
R-2	36	36	7.5
R-3	0	-	45.0
R-4	696	696	60.0
Phase 1B			
Land Development/Offsites			
R-1-12.5	20	20	6.0
R-1-7	49	49	10.5
R-1-5	157	157	10.5
R-2	0	-	7.5
R-3	0	-	45.0
R-4	0	-	60.0
Phase 1C			
Land Development/Offsites			
R-1-12.5	0	-	6.0
R-1-7	0	-	10.5
R-1-5	0	-	10.5
R-2	64	64	7.5
R-3	364	364	30.0
R-4	456	456	45.0
Town Center	108	108	20.0
Phase 1D			
Land Development/Offsites			
R-1-12.5	0	-	6.0
R-1-7	0	-	10.5
R-1-5	141	141	10.5
R-2	24	24	7.5
R-3		-	30.0
R-4		-	45.0
Phase 1E			
Land Development/Offsites			
R-1-12.5	0	-	6.0
R-1-7	85	85	10.5
R-1-5	101	101	10.5
R-2	131	131	7.5
R-3		-	30.0
R-4		-	45.0
Phase 2			
Land Development/Offsites			
R-1-12.5	85	85	6.0
R-1-7	223	223	10.5
R-1-5	307	307	10.5
R-2	225	225	9.0
R-3	140	140	30.0
R-4	336	336	45.0
Total	3,857	3,857	
MF Total	2,196	2,196	
SF Total	1,661	1,661	
Projected Citywide Demand/Permits			
MF	5,000		
VST MF Market Penetration	43.9%		
SF	14,875		
VST SF Market Penetration	11.2%		
Projected Citywide Total Permits	19,875		
Assumed Market Penetration	19.4%		


Site Detail
See Page A02



Site Size: **0.72 Acres**

Buildings:

Fire Station:	5,100 SF
Apparatus Bay	2,480 SF
Police Station:	2,875 SF

Parking:

PD	4 spaces
PD Guest (Onstreet)	3 spaces
FD	8 spaces

Assumed Turn Radii:

Engine-Outside:	50'R
Engine-Inside	35'R

AUTHOR NAME

				2032				2033				2034				2035				2036				2037				2038				2039				2040				2041				2042			
				4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Start Entitlement																																											
Start Technical Studies																																											
Complete Technical Studies																																											
Complete EIR Scoping Checklist																																											
Complete Draft Specific Plan																																											
Revised Applications to County																																											
Start Draft EIR Process																																											
Initial County/City Plan Review																																											
Admin Draft EIR																																											
Complete Draft EIR																																											
City/County Plan Review																																											
Complete Final EIR																																											
County PC Review																																											
County Board Adoption																																											
UC Annexation (City)																																											
Annexation/OBSA																																											
Phase 1A/Offsite Engineering and Design																																											
Phase 1B Engineering and Design																																											
Phase 1C Engineering and Design																																											
Phase 1D Engineering and Design																																											
Phase 1E Engineering and Design																																											
Phase 2 SP Amendment, Design and Mapping																																											
Phase 2A Engineering and Design																																											
Phase 2B Engineering and Design																																											
Phase 2C Engineering and Design																																											
Phase 2D Engineering and Design																																											
	Land Plan	Check Total	Absorption per Quarter																																									
Phase 1A																																											
Land Development/Offsites																																											
R-1-12.5	43	43	6.0																																									
R-1-7	0	-	10.5																																									
R-1-5	66	66	10.5																																									
R-2	36	36	7.5																																									
R-3	0	-	45.0																																									
R-4	696	696	60.0																																									
Phase 1B																																											
Land Development/Offsites																																											
R-1-12.5	20	20	6.0																																									
R-1-7	49	49	10.5																																									
R-1-5	157	157	10.5																																									
R-2	0	-	7.5																																									
R-3	0	-	45.0																																									
R-4	0	-	60.0																																									
Phase 1C																																											
Land Development/Offsites																																											
R-1-12.5	0	-	6.0																																									
R-1-7	0	-	10.5																																									
R-1-5	0	-	10.5																																									
R-2	64	64	7.5																																									
R-3	364	364	30.0																																									
R-4	456	456	45.0																																									
Town Center	108	108	20.0																																									
Phase 1D																																											
Land Development/Offsites																																											
R-1-12.5	0	-	6.0																																									
R-1-7	0	-	10.5																																									
R-1-5	141	141	10.5	10.5	10.5	10.5	14.5																																					
R-2	24	24	7.5		7.5	7.5	9																																					
R-3		-	30.0																																									
R-4		-	45.0																																									
Phase 1E																																											
Land Development/Offsites																																											
R-1-12.5	0	-	6.0																																									
R-1-7	85	85	10.5					10.5	10.5	10.5	10.5	10.5	10.5	10.5	11.5																														
R-1-5	101	101	10.5					10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	6.5																												
R-2	131	131	7.5					7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	11																					
R-3		-	30.0																																									
R-4		-	45.0																																									
Phase 2																																											
Land Development/Offsites																																											
R-1-12.5	85	85	6.0														6	6	10														6	6	6	6	6	6	6	9				
R-1-7	223	223	10.5															10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	13				
R-1-5	307	307	10.5													10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	13			
R-2	225	225	9.0																					9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	13
R-3	140	140	30.0																	30	30	30	30	30																				
R-4	336	336	45.0																	45	45	45	45	45	60	51																		
Total	3,857	3,857		10.5	18	18	23.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	29.5	28.5	24.5	34.5	34.5	113.5	103.5	103.5	103.5	97	90	81	30	30	30	30	30	30	30	36	36	36	38.5	25.5	25.5	25.5	25.5	25.5	31	10	10	10	13
MF Total	2,196	2,196		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	75	75	65	60	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SF Total	1,661	1,661		10.5	18.0	18.0	23.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	29.5	28.5	24.5	34.5	34.5	38.5	28.5	28.5	28.5	32.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	36.0	36.0	36.0	38.5	25.5	25.5	25.5	25.5	31.0	10.0	10.0	10.0	15.0
Projected Citywide Demand/Permits																																													
MF	5,000			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	102	103	104
VST MF Market Penetration	43.9%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	75.0%	75.0%	75.0%	65.0%	60.0%	51.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SF	14,875			200	200	200	200	200	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
VST SF Market Penetration	11.2%			5.3%	9.0%	9.0%	11.8%	14.3%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%	13.1%	12.7%	10.9%	15.3%	15.3%	17.1%	12.7%	12.7%	12.7%	14.2%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	14.4%	14.4%	14.4%	15.4%	10.2%	10.2%	10.2%	10.2%	10.2%	12.4%	4.0%	4.0%	4.0%	6.0%
Projected Citywide Total Permits	19,875			300	300	300	300	300	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	351	352	353	354
Assumed Market Penetration	19.4%			3.5%	6.0%	6.0%	7.8%	9.5%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	9.1%	8.8%	7.5%	10.6%	10.6%	34.9%	31.8%	31.8%	31.8%	29.8%	25.7%	23.1%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	10.3%	10.3%	10.3%	11.0%	7.3%	7.3%	7.3%	7.3%	7.3%	8.9%	2.8%	2.8%	2.8%	4.2%

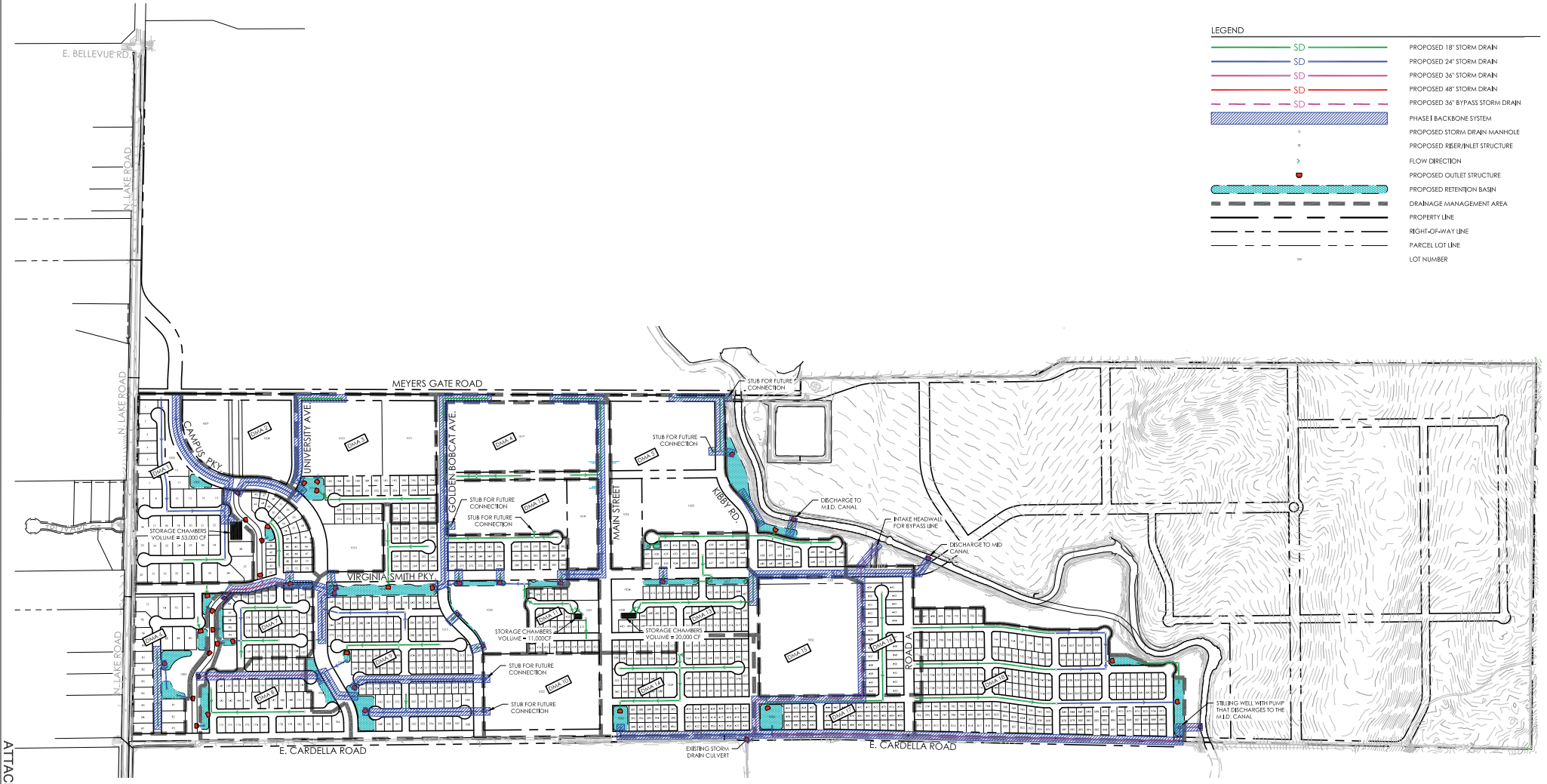
Attachment 4

Water and Wastewater Demand
per Development Phase and
Infrastructure Master Plans

					Phase 1						Phase 2					
	Avg Unit Size	PPH	Water Dewmand GPCD (w/WaterSense)	Sewer Flow (Indoor R-GPDC x 90%)	1A	1B	1C	1D	1E	**Total Phase 1**	2A	2B	2C	2D	**Total Phase 2**	**Total**
Housing Type																
R-1 Low (12,500)	3,250	3.20	100.00	50.00	43	20	-	-	-	**63**	21	-	64	-	**85**	**148**
R-1 Low-Medium (7000)	2,750	3.20	100.00	50.00	-	49	-	-	85	**134**	54	56	113	-	**223**	**357**
R-1 Medium (5000)	2,000	3.20	100.00	50.00	-	157	-	141	101	**399**	58	174	62	-	**294**	**693**
R-1 Medium (5000, Cluster/Alley)	1,900	3.20	100.00	50.00	66	-	-	-	-	**66**	-	-	13	-	**13**	**79**
R-2 (Cluster)	1,600	2.54	100.00	50.00	36	-	64	24	131	**255**	30	97	98	-	**225**	**480**
R-3 For Sale	1,400	2.54	100.00	50.00	-	-	160	-	-	**160**	70	-	-	-	**70**	**230**
R-3 For Rent	1,050	2.54	100.00	50.00	-	-	204	-	-	**204**	70	-	-	-	**70**	**274**
R-4 Student (60%)	850	2.54	100.00	50.00	418	-	274	-	-	**692**	-	-	-	202	**202**	**894**
R-4 Market (40%)	850	2.54	100.00	50.00	278	-	182	-	-	**460**	-	-	-	134	**134**	**594**
Town Center Mixed Use	975	1.75	100.00	50.00	-	-	108	-	-	**108**	-	-	-	-	**-**	**108**
					841	**226**	**992**	**165**	**317**	**2,541**	**303**	**327**	**350**	**336**	**1,316**	**3,857**
Residential Sewer Flow					**110,404**	**36,160**	**121,718**	**25,608**	**46,397**	**340,287**	**42,870**	**49,119**	**52,766**	**42,672**	**187,427**	**527,714**
Non-Residential Sewer Flows																
Retail Mixed (Main Street/Town Center)		12.28		500	-	-	6,140			**6,140**	-	-	-	-	**-**	**6,140**
Hotel/Office		7.62		500	-	-	3,810	-		**3,810**	-	-	-	-	**-**	**3,810**
NC/Retail		3.63		500	1,815	-	-	-		**1,815**	4,352	-	-	-	**4,352**	**6,167**
Community Commercial		11.90		500	-	-	-	5,950		**5,950**	-	-	-	-	**-**	**5,950**
Elementary School		15.00		25						**-**	22,500				**22,500**	**22,500**
Parks		75.66								**-**	18,750				**18,750**	**18,750**
										-					**-**	**-**
				Non-Residential Sewer Flows	**1,815**	**-**	**9,950**	**5,950**	**-**	**17,715**	**45,602**	**-**	**-**	**-**	**45,602**	**63,317**
				Total Sewer Flow	**112,219**	**36,160**	**131,668**	**31,558**	**46,397**	**358,002**	**88,472**	**49,119**	**52,766**	**42,672**	**233,029**	**591,031**
				Cumulative Sewer Flow	**112,219**	**148,379**	**280,047**	**311,605**	**358,002**		**446,474**	**495,593**	**548,359**	**591,031**	**591,031**	
Residential Water Demand					**220,808**	**72,320**	**243,436**	**51,216**	**92,794**	**680,574**	**85,740**	**98,238**	**105,532**	**85,344**	**374,854**	**1,055,428**
Non-Resodential Water Demand																**-**
Retail Mixed (Main Street/Town Center)		12.28	750.00				9,210			9,210					-	**9,210**
Hotel/Office		7.62	750.00				5,715			5,715					-	**5,715**
NC/Retail		3.63	750.00		2,723					2,723					-	**2,723**
Community Commercial		11.90	750.00					8,925		8,925					-	**8,925**
Elementary School (with 10 acres of parks)		15.00	30.00							-	47,247				47,247	**47,247**
Parks (from Parks ETWU Calcs)		75.66		2,025	10,093	12,091	4,702	11,052	27,550	65,488	55,336	6,650	17,669	8,049	87,704	**153,192**
				Non-Residential Water Demand	**10,093**	**12,091**	**4,702**	**11,052**		**37,938**	**55,336**	**6,650**	**17,669**	**8,049**	**87,704**	**125,642**
				Total Water Demand	**230,901**	**84,411**	**248,138**	**62,268**	**92,794**	**718,512**	**141,076**	**104,888**	**123,201**	**93,393**	**462,558**	**1,181,070**
				Cumulative Water Demand	**230,901**	**315,312**	**563,450**	**625,718**	**718,512**		**859,588**	**964,476**	**1,087,677**	**1,181,070**	**1,181,070**	

VIRGINIA SMITH TRUST

rrm design group



VIRGINIA SMITH

STORM DRAIN MASTER PLAN

SD1

December 4, 2020

P2 (depth)	1.49
P10 (depth)	2.3
P100 (depth)	3.57

TR-55 Tabulated Peak Discharge (q_p)(cfs)

post-development

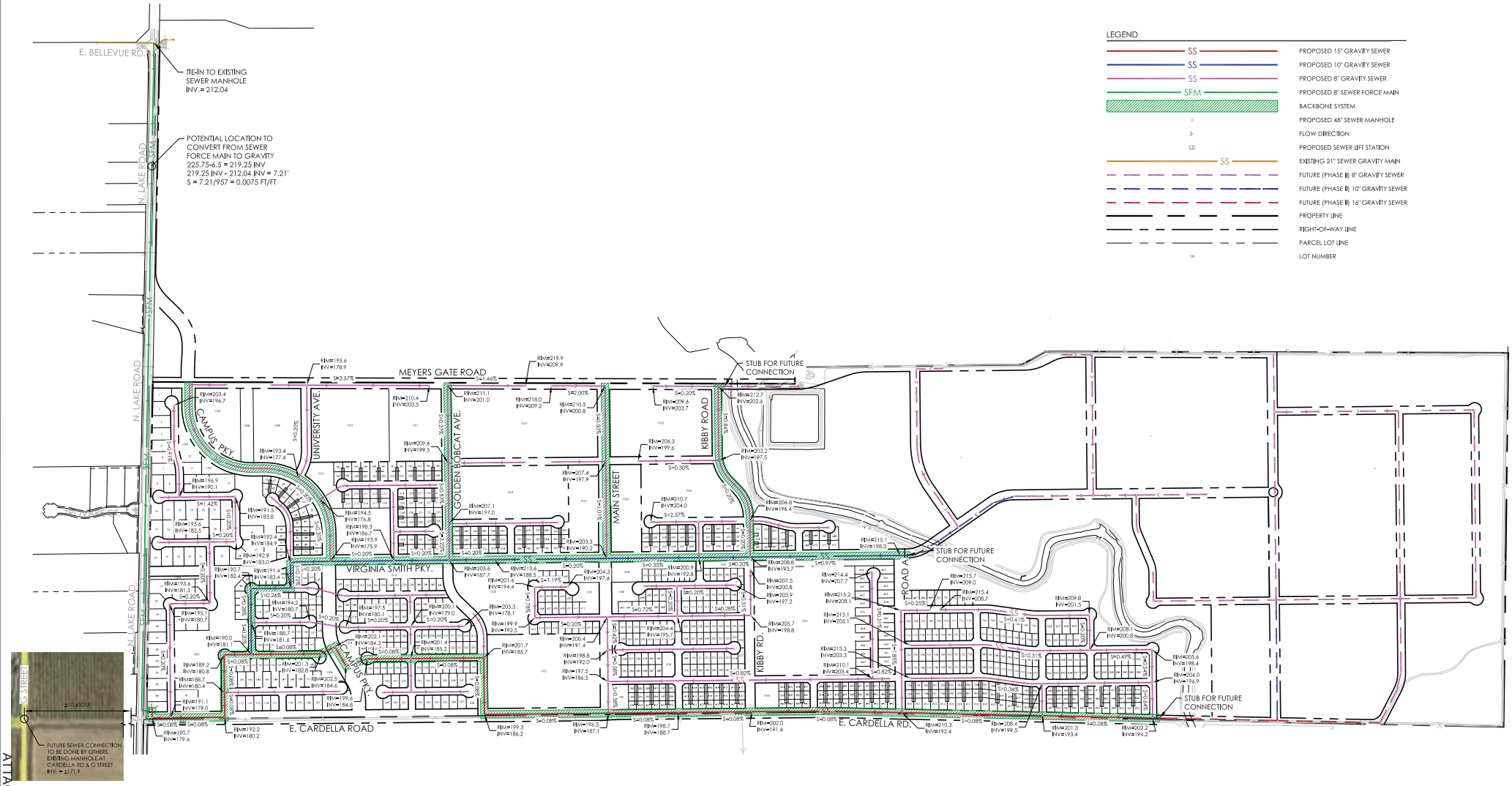
DMA #	Area (SFT)	Area (ac)	Area (sq mi)	2-yr (cfs)	10-yr (cfs)	100-yr (cfs)	CN(1)	Tc(1) hr	Q2 FROM PRE DEV WORKSHEET Target Q (2)	RUN FROM HYDROGRAPH FOR NEW NUMBERS: INPUT Q2 Req. Storage cft (3)
1	936741.0	21.5	0.0336	6	16	33	87	0.12	1	64,500
2	504013.0	11.6	0.0181	7	14	24	92	0.05	2	36,395
3	1218986.1	28.0	0.0437	13	29	53	92	0.07	3	81,188
4	593907.7	13.6	0.0213	6	14	26	92	0.06	2	32,083
5	1249052.8	28.7	0.0448	13	30	54	92	0.08	2	102,292
6	923071.0	21.2	0.0331	7	17	36	87	0.07	2	67,000
7	380660.0	8.7	0.0137	4	9	16	92	0.12	1	22,000
8	535861.0	12.3	0.0192	6.5	13	24	87	0.15	2	29,000
9	2383822.6	54.7	0.0855	26	56	104	87	0.1	5	175,217
10	555622.0	12.8	0.0199	6	13	23	87	0.18	1	35,148
11	283028.9	6.5	0.0102	3	7	12	87	0.15	2	10,766
12	530151.0	12.2	0.0190	6	13	23	87	0.19	2	27,121
13	1092381.5	25.1	0.0392	12	26	48	87	0.11	2	81,271
14	801149.3	18.4	0.0287	9	19	35	84	0.12	1	62,143
15	698710.3	16.0	0.0251	8	17	30	87	0.12	1	50,578
16	452912.0	10.4	0.0162	5	11	20	92	0.08	1	24,762
17	376237.7	8.6	0.0135	4	9	16	87	0.07	1	18,548
18	1597469.8	36.7	0.0573	17	38	70	87	0.12	4	105,379
Totals	15113777.7	347.0	0.5	158.5	351	647				1,025,391

(1) from TR-55 Calculator
(1) from TR-55 Calculator
(2) from
(3) from Volumetric BMP Sizing Tool

	Basin Provided (SF)	Standing Water Volume 6	Basin Rock Section (in-depth) 36	Basin Rock Section (in-depth) 48	Basin Volume provided (ft^3) 36	Basin Volume provided (ft^3) 48	Chambers Provided (ft^3)	Total (Cambers + Basin) Volume 36	Total (Cambers + Basin) Volume 48	Volume (ft^3) - required	
DMA 1	9868	4934	11842	15789	16776	20723	53000	69776	73723	64,500	
DMA 2	n/a	DRAINS TO BASIN IN DMA 1 AND 3								36,395	OK
DMA 3	27600	13800	33120	44160	46920	57960				81,188	
DMA 4	20000	10000	24000	32000	34000	42000				32,083	OK
DMA 5	50500	25250	60600	80800	85850	106050				102,292	OK
DMA 6	66500	33250	79800	106400	113050	139650				67,000	OK
DMA 7	30000	15000	36000	48000	51000	63000				22,000	OK
DMA 8	20500	10250	24600	32800	34850	43050				29,000	OK
DMA 9	102114	51057	122537	163382	173594	214439				175,217	OK
DMA 10	20000	10000	24000	32000	34000	42000				35,148	OK
DMA 11	n/a	n/a					11000	11000	11000	10,766	OK
DMA 12	30000	15000	36000	48000	51000	63000				27,121	OK
DMA 13	29584	14792	35501	47334	50293	62126	20000	70293	82126	81,271	OK
DMA 14	19500	9750	23400	31200	33150	40950				62,143	TOO SMALL
DMA 15	30000	15000	36000	48000	51000	63000				50,578	OK
DMA 16	55000	DRAINS TO BASIN IN DMA 17								24,762	OK
DMA 17	30921	15460.5	37105	49474	52566	64934				18,548	
DMA 18	51000	25500	61200	81600	86700	107100				105,379	OK
										1025391	

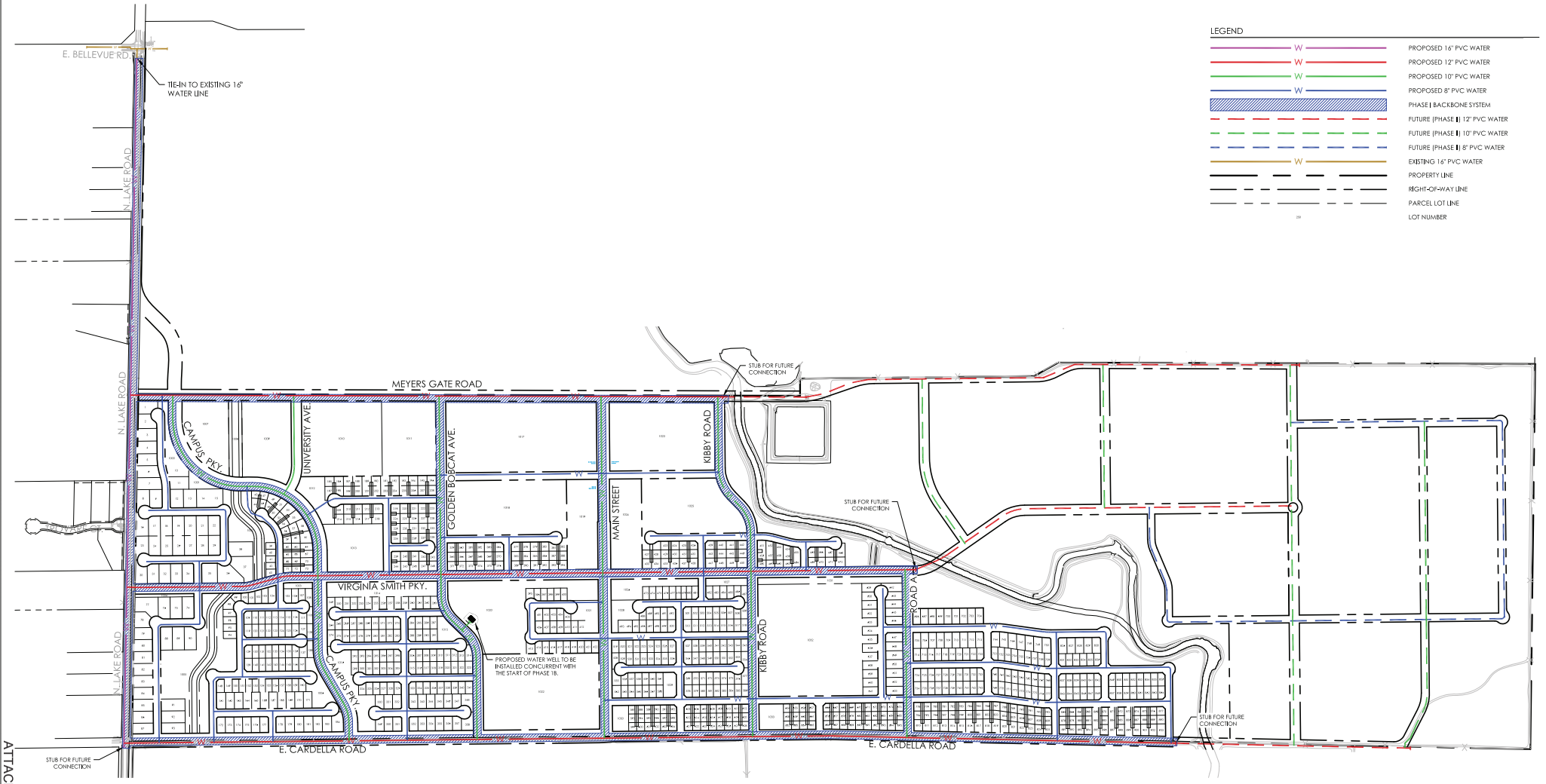
DMA 15 is the school site and are required to mitigate for stormwater onsite
DMA 1 through 3 use multiple basins to achieve storage requirements
DMA 14 to incorporate permeable pavers and utilize roadside bioswales for additional storage

NOTE: Catch Basins may be equipped with a filtration device capable of treating the flow of runoff generated from a rain event equivalent to at least 2x the 85th percentile hourly rainfall intensity as determined from local rainfall records or from a rain event equal to at least 0.2 inches per hour intensity.



VIRGINIA SMITH
WASTEWATER MASTER PLAN

SS1



VIRGINIA SMITH

WATER SUPPLY MASTER PLAN

W1

December 4, 2020

MEMORANDUM

To: Stephen Peck | Peck Planning and Development
From: Henry Liang, PE | MKN & Associates
Rob Lepore, GISP | MKN & Associates
Jason Wong, EIT | MKN & Associates
Date: January 28, 2021

Re: VST Water System Analysis

Background

The goal of the water system evaluation was to identify potential deficiencies related to the City of Merced (City) existing water supply, storage, distribution system ability to serve the proposed VST Development (Project) and identify the necessary improvements to connect the proposed Project to the existing water system. In addition, the evaluation identifies the sequence/phasing of the required onsite improvements to serve the Project. The Project includes two major development phases referred to as Phase 1 and Phase 2 with several subphases including 1A through 1E and 2A through 2D. **Figure 2** provides an illustration of the phase areas.

Attachment A includes a preliminary analysis to identify potential City-wide system impacts to serve the Project and this Technical Memorandum includes an evaluation of the Project's onsite water system to identify the recommended phasing of the required onsite improvements.

Document Review

MKN reviewed and utilized information from the following references to complete the water system analysis:

- 2014 Water Master Plan (2014 WMP)
- 2015 Urban Water Management Plan (2015 UWMP)
- 2019 Water Billing Data
- 2019 Water Production Data
- 2015 Water Distribution Model
- 2017 Wastewater Collection System Master Plan (2017 WCSMP)
- 2019 Wastewater Collection System Model (for existing, near-term, and full buildout)
- Near-Term Development Shapefile from 2019 Wastewater Collection System Model

Preliminary City-wide Analysis

The preliminary City-wide analysis was completed to identify the potential City-wide system impacts and develop required improvements to serve the Project. This analysis evaluates the Project as a single point-demand, and focuses on identifying required improvements on a City-wide basis. The following conclusions and recommendations were developed as part of the preliminary analysis (included as **Attachment A**):

- The Project is located within an area documented (2014 WMP) to have low pressure deficiencies based on the service area elevations.
- Based on the preliminary analysis, the City has sufficient supply (flow) and storage capacities to serve the Project, but the current head (pressure) capabilities of the groundwater wells are not sufficient to provide the required pressures to serve the Project demands.

- Currently there are no water mains along Lake Road to serve the Project. Installation of a 16-inch pipeline and associated appurtenances from the existing water main on Bellevue Road along Lake Road to the Project site will be required. This improvement should be constructed prior to the construction of the onsite water system facilities.
- The proposed Project is located within a low-pressure service area and future City demands (including Near-term and the Project) will further reduce existing system pressures along the Bellevue Road area below acceptable City design standards (per 2014 WMP). Because of this, the Project will require the installation of a Pressure Sustaining Valve (PSV) station located along Bellevue Road to create a new pressure zone (also identifying in the 2014 WMP). In addition, MKN determined it was not feasible to serve the Project without creating a new pressure zone. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- The Project can be partially served by the City's Well 17, but the Project will require additional groundwater well(s) to serve the Project through buildout.

Project Specific Analysis

Based on the results of the preliminary City-wide system evaluation, MKN performed a more in-depth Project Specific Analysis to review the adequacy of the proposed onsite water system and determine the requirements (including phasing) of the onsite well(s). The Project Specific Analysis accounts for the proposed water distribution system layout and topographic elevations. The Project specific analysis completed below included a hydraulic evaluation of the proposed Project distribution system only and did not reevaluate the City's supply and storage facilities.

For the preliminary City-wide system evaluation, MKN developed and utilized, a water demand factor of 120 gallons per capita per day (gpcd) for the Project. Although MKN recognizes that historical Merced water usage has been 110-120 gpcd, VST is committed to reducing the future water consumption for the proposed Project to 100 gpcd based on water efficient landscaping, less landscaping per capita, and WaterSense fixtures as part of its specific plan and development agreement. Based on this objective by VST, MKN has developed the following future demands for the Project as shown in **Table 1**. The total Average Day Demand (ADD) for existing, Near-term, and the Project was estimated to be 24.6 MGD (17,086 gpm) with the Project demand of 1.3 MGD (912 gpm).

Table 1: Project Water Demands

Demand Scenario	ADD (gpm)	MDD (gpm)	MDD+FF (gpm)	PHD (gpm)
2019 Existing	10,910	20,728	4,000	30,547
Near-term	5,263	10,000		14,737
VST Phase 1	508	965		1,423
VST Phase 2	404	769		1,133
Total	**17,086**	**32,463**	**36,463**	**47,840**

Notes:
1. Residential demand based on 100 gpcd.
2. MDD = ADD x 1.9 per 2014 WMP.
3. PHD = ADD x 2.8 per 2014 WMP.
4. Worst-case fire flow requirement is 4,000 gpm.

For the City's 2014 WMP, AECOM developed a water distribution system model using WaterCAD. The model represented 2014 conditions for Average Day Demand (ADD), Maximum Day Demand (MDD), Maximum Day Demand plus Fire Flow (MDD+FF), and Peak Hour Demand (PHD) scenarios. MKN revised existing

demands to reflect 2019 conditions (as described in **Attachment A**) to analyze the existing water distribution system to serve Near-term demands and the Project.

Scenarios 1 through 4 below evaluated the water system "backbone" (12-inch pipelines and larger) of the Project. The hydraulic model was updated with pipeline diameters and junction elevations based on information provided by Project's design engineer (RRM). It should be noted that the majority of Phase 2 of the development east of the Fairfield Channel has not been designed beyond the backbone system. In Phase 2 locations, junction elevations were assigned based on ground elevation from a topographic map. Demands and fire flows were then added to each junction based on land use. The elevations in the VST development range from 189 feet in the southwest corner to 250 feet on the northeast corner. The highest elevation is much higher than the elevation assumed in the initial analysis (199 ft) and located at the Lake Road/Virginia Smith Parkway entrance to the Project. As a result, higher pressures and flows would be required to serve VST's MDD+FF conditions as shown in **Table 2**.

As identified in the preliminary City-wide system evaluation, the Project will require additional groundwater wells to serve commercial and institutional fire flows and remaining Phase 2 residential demands through buildout. For the Project site hydraulic analysis described below, MKN evaluated the use of a single large onsite well or multiple smaller onsite wells to serve the Project demands. For scenarios 1 and 2, it was assumed that Well 17 and a single onsite well (as shown on **Figure 1**) could be developed to supply system flows and pressures for the Project. For scenarios 3 and 4 it was assumed that Well 17 and two smaller onsite wells (as shown on **Figure 2**) could also be developed to supply system flows and pressures. For scenario 4, MKN determined the reduced demands and fire flows that could be served with a single onsite well rated at 2,000 gpm. The scenarios below are based on the existing operating conditions of Well 17, which will change once the new pressure zone is created to serve the Project. Potential modifications to Well 17 and the final design criteria for the new onsite well(s) will be developed during the phase of the new onsite well(s). **Table 2** provides a summary of the results for scenarios 1 through 4.

Table 2: Project Hydraulic Analysis

Analysis Scenario		VST Demand (gpm)	Supplies from Wells		Representative Pressures (PSI)	
Scenario	Description		Well 17 Outflow (gpm)	Onsite VST Well Outflow (gpm)	Lowest El J-1012 (El=189')	Highest El J-1049 (El=250')
1	Existing + NT + VST PHD	2,556	763	1,800	69	43
2	Existing + NT + VST MDD + FF @ 3000 gpm	4,734	1,634	3,100	49	22
3	Existing + NT + VST MDD + FF @ 1500 gpm	3,234	1,234	2,000	60	30
4	Existing + NT + Limited VST MDD + FF @ 2500 gpm	3,805	1,805	2,000	43	-
5	Existing + NT + Limited VST with only Well 17 MDD + FF @ 1500 gpm	2,233	2,068	-	37	-

Notes:
1. VST MDD = 1,734 gpm.
2. Limited VST MDD = 1,305 gpm.
3. Scenario 4 would include residential and commercial demands associated with phases 1A, 1B, 1C, 1D, 2A, and 2D only.
4. Scenario 5 would include residential demands associated with phases 1A and 1B only.
5. Scenarios 1-5 include a future pressure sustaining valve located on the pipeline in Bellevue Road and the UCM and Project operating within a new higher pressure zone.

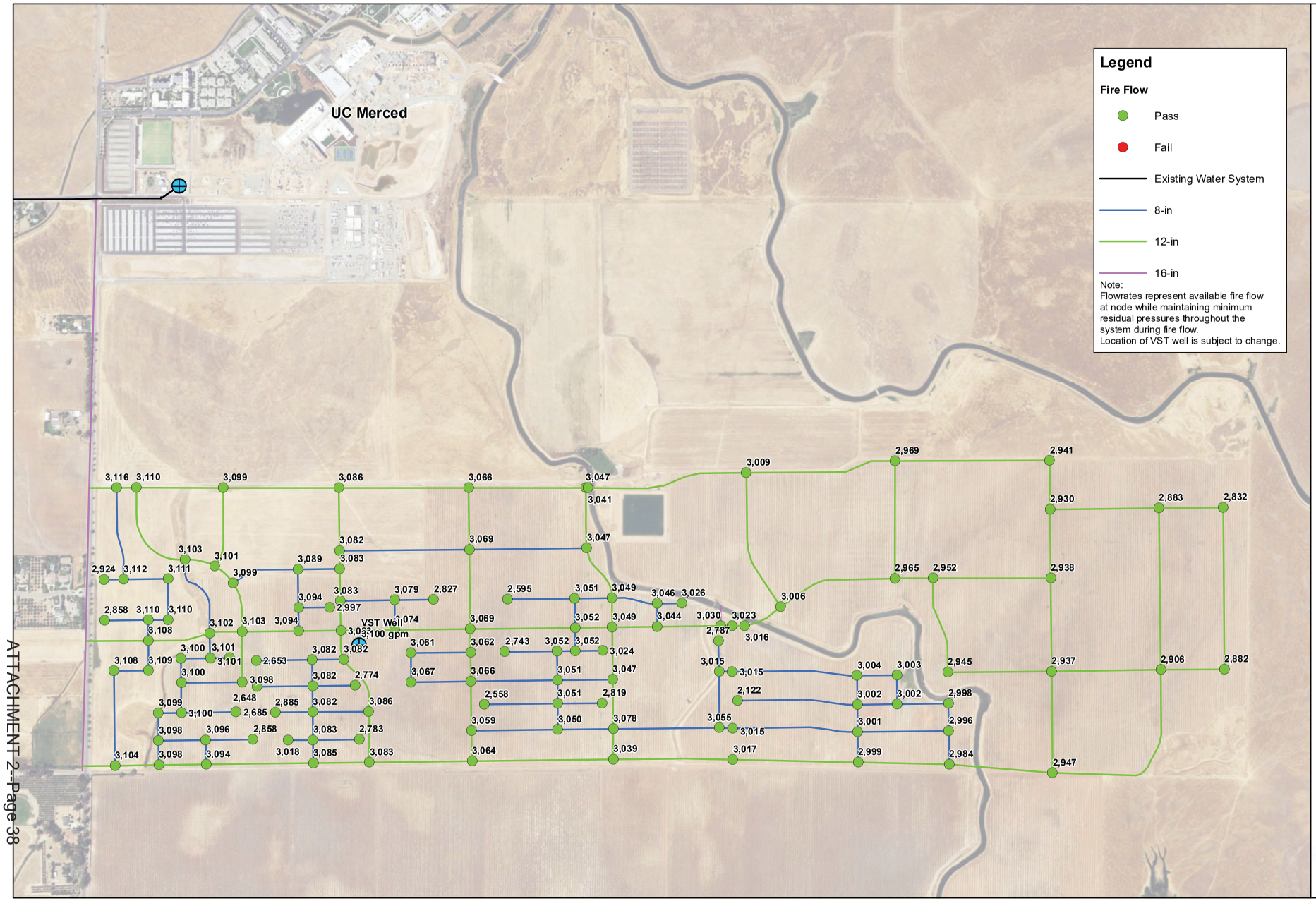


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Figure 1:

Water System Analysis Scenario 2

New Pressure Zone
Full VST Development
Existing + NT + VST
MDD + FF

1 inch = 800 feet

0 400 800

mkn

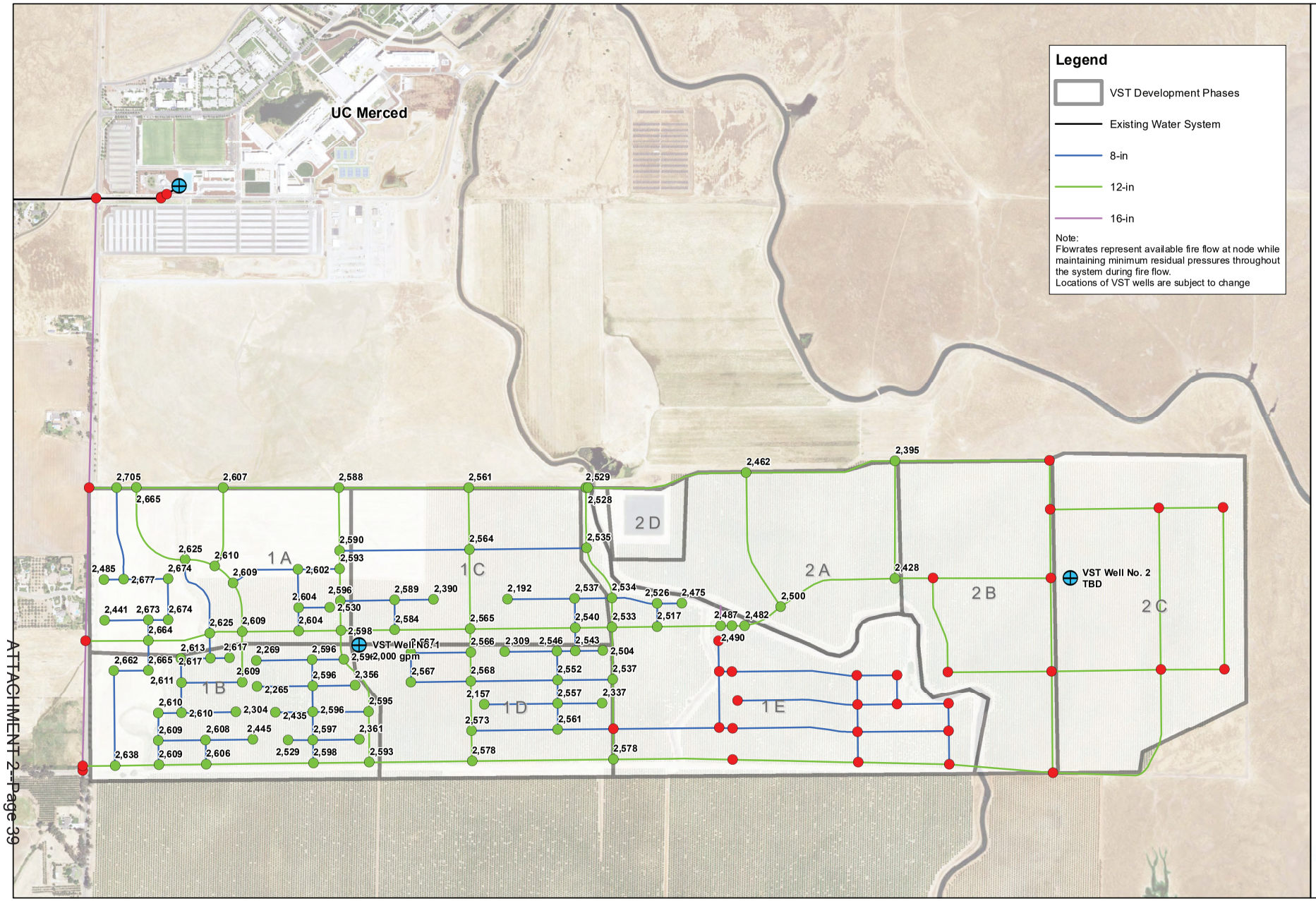

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Figure 2:

Water System Analysis Scenario 4

Existing + NT + Limited VST MDD + FF @ 2500 gpm

1 inch = 800 feet

0 400 800

mkn

Based on Scenarios 1 and 2 a single onsite well that can produce up to 3,100 gpm would be required to serve the entire development. The fire flow analysis assumed that 3,000 gpm from a single fire hydrant location would be required to serve the school. However, it is recommended that VST discuss this requirement with the City to determine if the 3,000 gpm can be spread among several hydrants. This decision by the City could impact/reduce the final required flow for the onsite well, however 2,500 gpm would still be required to serve commercial fire flow demands throughout the development.

For Scenario 4 a single onsite well that can produce up to 2,000 gpm could serve subphases 1A, 1B, 1C, 1D, 2A, and 2D of the Project. The institutional fire flow and remaining subphases would require a second onsite well capable of supplying at least 1,100 gpm.

Lastly, Scenario 5 shows that residential units for phases 1A and 1B can be served solely by Well 17. VST would require the first 2,000 gpm well to serve the rest of the residential units.

Recommended Improvements

Based on the water system analyses, the following improvements and phasing are recommended to serve the Project:

Residential Development

Phase 1A and 1B residential developments can be served with the following improvements:

- Improvement 1 - Installation of a 16-inch pipeline and associated appurtenances from the existing water main on Bellevue Road along Lake Road to the Project site will be required. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- Improvement 2 - Installation of a Pressure Sustaining Valve (PSV) station located along Bellevue Road to create a new pressure zone. This improvement should be constructed prior to in the construction of the onsite water system facilities.

All Phase 1 and 2 residential developments can be served with the following additional improvements:

- Improvement 3 - Construction of a new groundwater well capable of supplying 2,000 gpm (see **Figure 2** for location of well and connection to the VST water distribution system)

Commercial Development

All commercial developments can be served with the following improvements:

- Improvement 1 - Installation of a 16-inch pipeline and associated appurtenances from the existing water main on Bellevue Road along Lake Road to the Project site will be required. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- Improvement 2 - Installation of a Pressure Sustaining Valve (PSV) station located along Bellevue Road to create a new pressure zone. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- Improvement 3 - Construction of a new groundwater well capable of supplying 2,000 gpm (see **Figure 2** for location of well and connection to the VST water distribution system)

Schools

The School can be served with the following improvements:

- Improvement 1 - Installation of a 16-inch pipeline and associated appurtenances from the existing water main on Bellevue Road along Lake Road to the Project site will be required. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- Improvement 2 - Installation of a Pressure Sustaining Valve (PSV) station located along Bellevue Road to create a new pressure zone. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- Improvement 3 - Construction of a new groundwater well capable of supplying 2,000 gpm (see **Figure 2** for location of well and connection to the VST water distribution system)
- Improvement 4 - Construction of an additional new groundwater well capable of supplying 1,100 gpm or greater (see **Figure 2** for location of well and connection to the VST water distribution system)

ATTACHMENT A

MEMORANDUM

To: Stephen Peck | Peck Planning and Development
From: Henry Liang, PE | MKN & Associates
Rob Lepore, GISP | MKN & Associates
Jason Wong, EIT | MKN & Associates
Date: December 30, 2020

Re: Preliminary City-wide Analysis

Background

The goal of the water system evaluation was to identify potential deficiencies related to the City of Merced (City) existing water supply, storage, distribution system ability to serve the proposed VST Development (Project) and identify the necessary improvements to connect the VST Development to the existing water system. The Project includes two major development phases referred to as Phase 1 and Phase 2 with several subphases including 1A through 1D and 2A through 2E.

The water system evaluation included a preliminary analysis to identify potential City-wide system impacts to serve the Project as described below.

Document Review

MKN reviewed and utilized information from the following references to complete the water system analysis:

- 2014 Water Master Plan (2014 WMP)
- 2015 Urban Water Management Plan (2015 UWMP)
- 2019 Water Billing Data
- 2019 Water Production Data
- 2015 Water Distribution Model
- 2017 Wastewater Collection System Master Plan (2017 WCSMP)
- 2019 Wastewater Collection System Model (for existing, near-term, and full buildout)
- Near-Term Development Shapefile from 2019 Wastewater Collection System Model

Existing, Near-term, and VST Water Demands

To identify existing baseline water demands within the water system, MKN compared the City's 2014 WMP demands with 2019 water billing and production data (provided by the City). The 2019 water usage data showed significant decreases in the Average Day Demand (ADD), from 23.4 million gallons per day (mgd) to 15.7 mgd. In addition, the current residential per capita water usage within the City was calculated to be 132 gallons per capacity day (gpcd) based on 2019 billing data. This is the average residential water use for all housing types, old and new. This calculation agrees with and is somewhat lower than the 145 gallons per day per person that the City reported to the State Department of Water Resources between 2015 and 2019.

For Near-term future demand conditions, MKN utilized the Near-term development projects defined in the 2017 Wastewater Collection System Master Plan (2017 WCSMP) as projects that have paid into the North Merced Sewer Assessment District or parcels identified in the City's Tentative Subdivision Activity Map. These Near-term projects include all development projects that the City believe have some form of development commitment and are considered "entitled" projects, whether or not they actually have all necessary development entitlements. These projects are currently under construction or expected to

develop in the near future. The Near-term projects do not include any future expansion associated with UC Merced.

From this information, the Near-term development population was calculated by determining potential dwelling units of each parcel based on land use type and area and multiplying that number by an average 3.02 persons per dwelling unit (per the 2017 WCSMP). Near-term ADD was calculated by multiplying the Near-term development "population" by a per capita water demand. For this analysis, the Near-term ADD was estimated at 7.6 MGD (5,263 gpm). While the VST project has committed to a 25% reduction in water use compared to citywide averages to comply with SGMA and State requirements, and to reflect current building code requirements, for the purposes of this analysis, MKN used a modified per capita water demand value of 120 gpcd based on discussions with the City and assuming water conservation measures required for newer developments within the City. For the VST development, ADD was calculated using land use factors from the 2014 WMP, population estimates from the developer, and the modified per capita water demand of 120 gpcd as described above. The ADD for VST was estimated at 1.55 MGD (1,080 gpm).

The total ADD (existing, Near-term, and VST) for the hydraulic analysis was 24.8 MGD (17,253 gpm). The breakdown of the ADD, Maximum Day Demand (MDD), and Peak Hour Demand (PHD) is provided in **Table 1**.

Table 1: Water Demands

Demand Scenario	ADD (gpm)	MDD (gpm)	MDD+FF (gpm)	PHD (gpm)
2019 Existing	10,910	20,728	4,000	30,547
Near-term	5,263	10,000		14,737
VST Phase 1	598	1,137		1,675
VST Phase 2	481	915		1,348
Total	**17,253**	**32,780**	**36,705**	**48,307**

Notes:
1. MDD = ADD x 1.9 per 2014 WMP.
2. PHD = ADD x 2.8 per 2014 WMP.
3. Worst-case fire flow requirement is 4,000 gpm.

Design Criteria

MKN used the design criteria from the City's 2014 WMP as the basis for the City-wide and The Project specific fire flow analysis, as shown in Table 2. For the VST development, per City requirements it was assumed that all new facilities would be sprinklered. Relevant fire flow requirements for VST include multi-family residential, commercial, and industrial/institutional (the school that will be built on-site). As a result, the required fire flows ranged from 1,500 gpm to 3,000 gpm.

Table 2: Water System Design Criteria

Component	Criteria	Remarks / Issues
Single-Family Residential	1,500 gpm @ 2 hours (non-sprinklered)	1,000 gpm @ 2 hours (sprinklered)
Multi-Family Residential	2,500 gpm @ 2 hours (non-sprinklered)	1,500 gpm @ 2 hours (sprinklered)
Commercial	3,000 gpm @ 3 hours (non-sprinklered)	2,500 gpm @ 3 hours (sprinklered) based on review on a case-to-case basis
Industrial / Institutional	4,000 gpm @ 4 hours (non-sprinklered)	3,000 gpm @ 4 hours (sprinklered) based on review on a case-to-case basis

Supply and Storage Analysis

MKN analyzed the supply and storage capacity of the existing water system to determine if the existing wells and storage facilities can serve existing, Near-term, and VST demands. As identified in the 2014 WMP, for the supply evaluation, the wells must have sufficient firm pumping capacity to meet maximum day demand with fire flow (MDD+FF) and PHD, where firm pumping capacity is defined as the pumping capacity with the largest well out of service. Table 2 shows that the existing water production facilities can meet existing, Near-term, and VST MDD+FF and PHD demands with the firm pumping capacity.

Table 3: Ability of Production Facilities to Meet Demands

Criteria	Source Capacity (gpm) Based on Well Design			City MDD+FF (GPM)[6]	NT & VST MDD (GPM)	Source Capacity Surplus / (Deficit) (GPM)
	Active Wells	Well 14	Total Capacity			
Meet MDD+FF with all supplies	49,100	4,000	**53,100**	24,728	12,052	**16,320**
Meet MDD+FF with firm capacity[5]	49,100	-	**49,100**	24,728	12,052	**12,320**
Meet PHD with all supplies	49,100	4,000	**53,100**	30,547	17,760	**4,793**
Meet PHD with firm capacity[5]	49,100	-	**49,100**	30,547	17,760	**793**

Notes:
1. Active wells include 1A, 1B, 1C, 2A, 2B, 3C, 5B, 7C, 8, 9, 10R2, 11, 13, 15, 16, 17, 18, 19, 21.
2. Largest well assumed to be Well 14.
3. Standby well include 2C per 2015 UWMP.
4. Inactive wells include 7A, 7B per 2015 UWMP.
5. Firm capacity is defined as the total capacity with the largest well out of service.
6. Worst-case fire flow used for evaluation was 4,000 gpm per 2014 WMP.

For the storage evaluation, MKN utilized the following design criteria (from the 2014 WMP) to determine required storage to serve existing, Near-term, and VST demands:

- Operational Storage: 30 percent of Maximum Day Demand
- Emergency Storage: 100 percent of Average Day Demand
- Fire flow Storage: The required maximum fire flow times the fire flow duration period.

The available storage is comprised primarily of ground storage in wells. The 2014 WMP states that groundwater supply can offset the need for treated water storage if:

- The groundwater supply is of potable water quality and can be reliably accessed (wells are equipped with onsite emergency generators).
- The water extracted is not already being relied upon to meet the City's ADD requirements.
- Sufficient water transmission facilities are available to distribute this water to demand areas.

Because all well in the existing water system meets the first and third requirements, the City is allowed groundwater storage credits of 80 percent of the groundwater pumping capacity minus the ADD. Table 3 shows the available and required storage capacity for the City. The required storage is approximately 40 MG to serve existing Near-term and VST demands, while the existing storage capacity is approximately 45 MG. Overall, the existing storage in wells is adequate to meet the existing, Near-term, and VST operational, emergency, and fire flow storage.

Table 4: Comparison of Available and Required Storage Capacity					
Available Storage Capacity, MG[1]	Required Storage Capacity, MG				Excess Capacity, MG[3]
	Operational	Fire Flow[2]	Emergency	Total	
45.02	14.16	0.96	24.84	39.96	5.06

Notes:
1. Available storage from groundwater wells with backup power. Based on the production of 80% of City wells minus ADD and 20% of City wells assumed out of service.
2. Based on required institutional fire flow of 4,000 gpm for four hours.
3. Calculated as required storage minus available storage.

Distribution System Analysis

For the 2014 WMP, AECOM developed a water distribution system model using WaterCAD. The model represented 2014 conditions for average day demand (ADD), max day demand (MDD), max day demand plus fire flow (MDD+FF), and peak hour demand (PHD) scenarios. MKN revised existing demand to reflect 2019 conditions (as described above) to analyze the existing water distribution system to serve Near-term demands and the VST development.

MKN developed 18 scenarios within the hydraulic model to analyze pressures/flows and identify potential system impacts to the existing water system to serve the VST development. The modeling results are shown in **Table 5** Flows from Well 17, planned Well 22, and a proposed well located onsite at the Project were included in the analysis. All scenarios assumed a new 16-inch pipeline on Lake Road from Bellevue Road to the Project and a single new 12-inch looped pipeline within the Project has been constructed, as shown on **Figures 1** through **4**. In addition, MKN selected three locations within the existing water system to monitor system pressures during the analysis. These locations included UC Merced, the proposed VST development, and along West Avenue (lowest elevation/highest pressure area). The scenario descriptions and results are shown below:

- **Scenarios 1 to 3: Existing ADD, MDD, and PHD:** These scenarios show how the current system performs without any near-term developments or improvements. Overall, the system can meet PHD at pressures greater than 40 psi at all locations with the existing system.
- **Scenario 4 to 7: Existing and Near Term ADD, MDD, MDD+FF at VST, and PHD without system improvements:** These scenarios show how the current system performs with Near-term and VST demands. Scenarios 6a and 6b show fire flows at 3,000 gpm and 1,500 gpm at the VST development, which is the range of fire flows VST could experience. In these scenarios, pressures at UC Merced and VST drop well below 20 psi during MDD+FF and below 40 psi during PHD. The pressure at VST during MDD+FF range from -12 psi to 16 psi. The pressures at UC Merced drop significantly because Well 17 is providing flow for both locations.
- **Scenarios 8 and 9: ADD, MDD+FF, and PHD with Limited VST Development:** These scenarios show only partial buildout of VST in each scenario. The goal was to determine the highest VST demand the system can handle without a new supply source. The analysis determined that a maximum ADD of 125 gpm and PHD of 350 gpm at the VST development. Residual pressures are above 20 psi during MDD+FF at 3,000 gpm conditions at this level of buildout. However, pressures at UC Merced drop below 40 psi during PHD, even when VST demands are not included. This means that other Near-term demands are affecting pressures at UC Merced significantly, since Well 17 is delivering flow to the rest of the distribution system. It also shows that developing a new pressure zone in the northeastern part of Merced will help keep pressures above 40 psi at UC Merced. Results for the pressure zone are shown in Scenarios 15 to 19.
- **Scenarios 10 to 13: Existing and Near Term ADD, MDD, MDD+FF, and PHD with planned Well 22 and pipeline improvements:** These scenarios include a 2,000 gpm planned well at the intersection of Hatch Road and Cardella Road, with pipelines connecting the well to VST on Lake Rd and to Yosemite Ave along

Hatch Rd. The implementation and construction of Well No. 22 is unknown at this time and scenarios 10 to 13 are provided for informational purposes. The results show that Well 22 provides enough flow to fix pressures during MDD+FF conditions, but cannot provide enough pressure to reach 40 psi during PHD conditions. The difficulties in meeting PHD is purely based on the higher elevations at VST. This was an observed issue included in the 2014 WMP, which included a proposed improvement alternative to create a new pressure zone to serve the northeast portion of the City.

- **Scenario 14: Existing and Near Term PHD with planned Well 22 and no pipeline on Hatch Road:** This scenario includes Well 22 along with a pipeline connecting the well to the VST development, but with no pipeline connection at Yosemite Avenue. This means that flow from Well 22 is not being split between the two pipelines and all of it is going to the VST development. Although this increases pressures in the area slightly, the pressures are still well below 40 psi.
- **Scenarios 15 and 16: Existing and Near Term MDD+FF and PHD with new Pressure Zone:** These scenarios are the same a Scenarios 8 and 9, but with addition of a new pressure zone in the Northeast portion of City that would include UC Merced, VST, and other developments in the area, as recommended in the 2014 WMP. In addition, a 2,000 gpm on-site VST well was included in this scenario. In the model, a PSV was placed on Bellevue Road, right next to UC Merced to isolate the area. With the new pressure zone, the distribution system at UC Merced and VST are able to meet a residual pressure of 20 psi during MDD+FF and a pressure of 40 psi during PHD.
- **Scenarios 17, 18, and 19:** These scenarios were developed to determine the maximum amount of development that can be served on the VST site without installing an on-site well, but including the 16" connection to Bellevue and the PSV in Bellevue Road to create a pressure zone in northeast Merced. The analysis of these scenarios demonstrated that Phase 1 (2,500 dwelling units and 800,000 SF of commercial/office space) could theoretically be served without an onsite well. However, these scenarios were based on pressures and volumes at the Lake Road entrance to VST and did not account for head losses associated with onsite elevation changes and pipeline friction. These head losses may result in decreased pressures and flows below acceptable levels as more pipelines are added to the development. In addition, the well must be installed before the school is built as fire flow increases to 3,000 gpm in that area. Fire flows were analyzed at 1,500 gpm and 3,000 gpm, which represents residential and the school fire flows. At 3,000 gpm fire flow, results are the same as scenario 8, as flows from the Bellevue Road pipeline provide fire flow. The maximum flow the system can handle is 281 gpm of max day flow, or around 147 gpm during ADD conditions. For a fire flow of 1,500 gpm, the system can handle around 1,700 gpm of max day flow, or 895 gpm during ADD conditions. These scenarios show that phase 1 residential facilities can be built out without installing the on-site well, since residential fire flows are only 1,500 gpm.

Table 5 and **Figures 1** through **4** provide a summary of system pressures and flows for the scenarios described above.

Table 5: Water System Analysis Hydraulic Modeling Results								
Analysis Scenario			Supplies from Wells			Representative Pressures (PSI)		
Scenario	Description	Total System Demand (gpm)	Well 22 (2000 gpm) Outflow (gpm)	Well 17 (2500 gpm) Outflow (gpm)	Onsite VST Well (2000 gpm) Outflow (gpm)	UCM J-2738 (El=213')	VST J-922 (El=199')	Lowest El J-632 (El=147')
1	Existing ADD	10,910	-	577	-	42	49	62
2	Existing MDD	20,728	-	913	-	42	49	60
3	Existing PHD	30,547	-	1,190	-	42	49	58
Without Well 22 and Pipeline Improvements								
4	Existing + NT + VST ADD	17,253	-	1,944	-	35	39	59
5	Existing + NT + VST MDD	32,780	-	2,048	-	31	33	58
6a	Existing + NT + VST MDD + FF @ 3000 gpm	35,780	-	2,615	-	9	-12	58
6b	Existing + NT + VST MDD + FF @ 1500 gpm	34,280	-	2,261	-	24	16	58
7	Existing + NT + VST PHD	48,307	-	2,103	-	20	16	54
With Limited VST Development [1]								
8	Existing + NT + VST MDD + FF @ 3000 gpm	34,010	-	2,093	-	25	19	58
9	Existing + NT + VST PHD @ 350 gpm	45,634	-	1,787	-	34	40	54
With Well 22 and Pipeline Improvements								
10	Existing + NT + VST ADD	17,253	201	1,766	-	40	46	61
11	Existing + NT + VST MDD	32,780	1,002	1,937	-	35	40	58
12a	Existing + NT + VST MDD + FF @ 3000 gpm	35,780	2,000	2,066	-	31	32	58
12b	Existing + NT + VST MDD + FF @ 1500 gpm	34,280	1,988	2,013	-	32	36	58
13	Existing + NT + VST PHD	48,307	1,779	2,120	-	29	33	54
With Well 22 no pipeline on Hatch Road								
14	Existing + NT + VST PHD	48,307	2,000	2,087	-	30	35	54
VST Pressure Zone [2]								
15	Existing + NT + VST PHD	48,307	-	1,459	1,644	42	47	54
16	Existing + NT + VST MDD + FF @ 3000 gpm	35,705	-	2,201	1,810	26	20	58
Limited VST Pressure Zone								
17	Existing + NT + VST PHD[3]	46,860	-	1,576	-	40	43	54
18	Existing + NT + VST MDD + FF @ 3000 gpm[4]	34,010	-	2,093	-	25	19	58
19	Existing + NT + VST MDD + FF @ 1500 gpm[5]	33,929	-	2,078	-	26	20	58

[1]VST ADD = 125 gpm | PHD = 350 gpm
[2]Creating a VST pressure zone requires a pressure sustaining valve on Bellevue and a new water supply well within VST. Connection at Cardella is not included in this scenario.
[3]VST ADD = 563 gpm | PHD = 1,576 gpm
[4]VST ADD = 147 gpm | MDD = 281 gpm
[5]VST ADD = 895 gpm | MDD = 1,700 gpm

General Notes:
1. All scenarios assume VST residential demands based on 120 GPCD.
2. Assume 3,000 gpm fire flow required for school with sprinkler system.
3. Assume 16-inch pipeline to VST site along Lake Road with no demands.
4. For scenarios 10 - 13, flow from Well 22 serving system demands with minimal flow to VST.
5. Well 22 improvements include new 2,000 gpm well, new 16-inch pipeline on Hatch Road from Cardell Road to Yosemite Road, and new 16-inch pipeline on Cardella Road from Hatch Road to Lake Road.

Cell Color Legend (Per 2014 WMP Design Criteria)

<20	Below minimum recommended system pressure during MDD plus FF
<40	Below minimum recommended system pressure during MDD or PHD
40 - 60	Within recommended system during all demand conditions

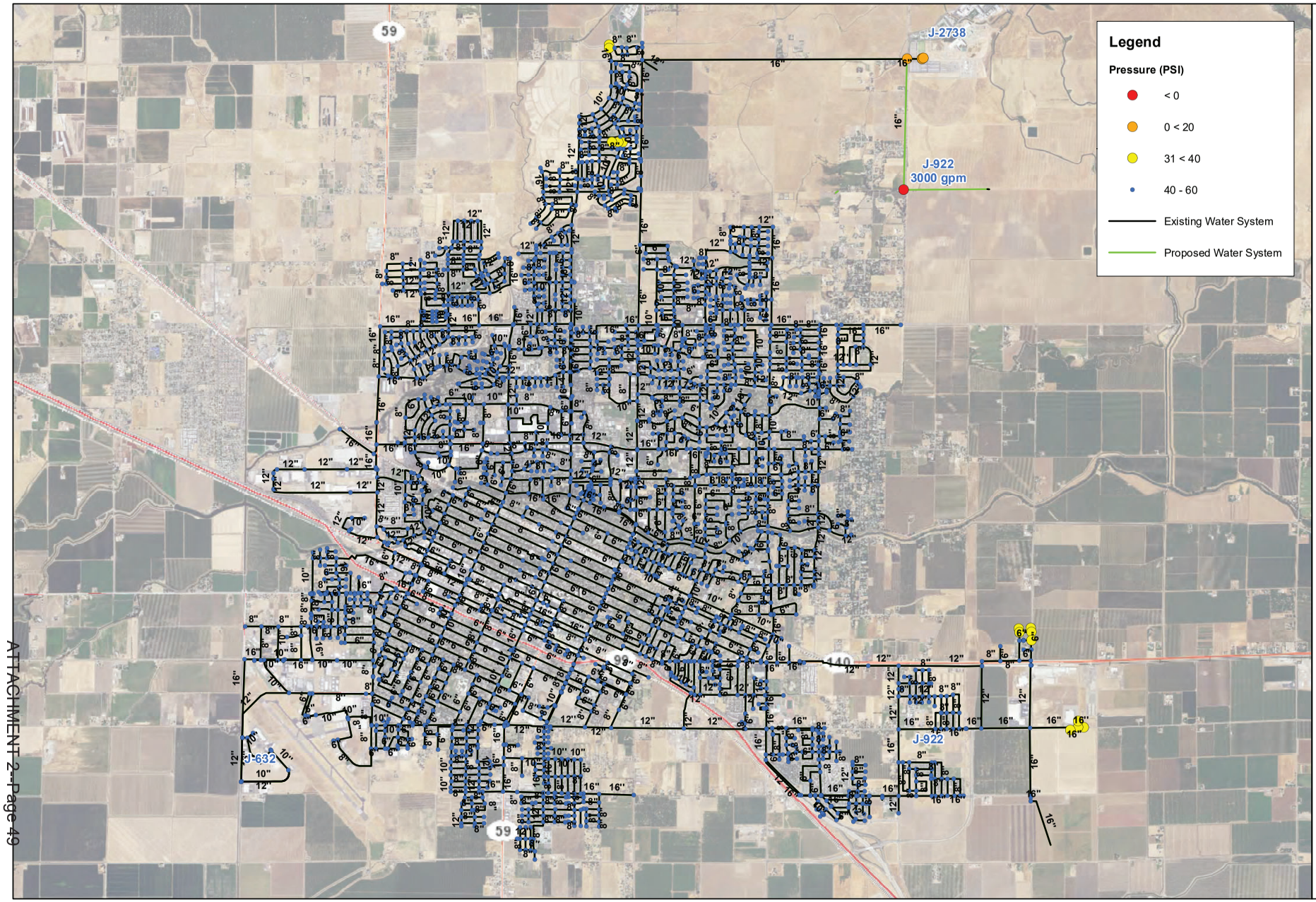

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Figure 1:

Water System Analysis
Scenario 6a

Existing + NT + VST
MDD + FF @ 3000 gpm

1 inch = 3,500 feet

0 1,750 3,500

mkn WATER WASTEWATER REUSE

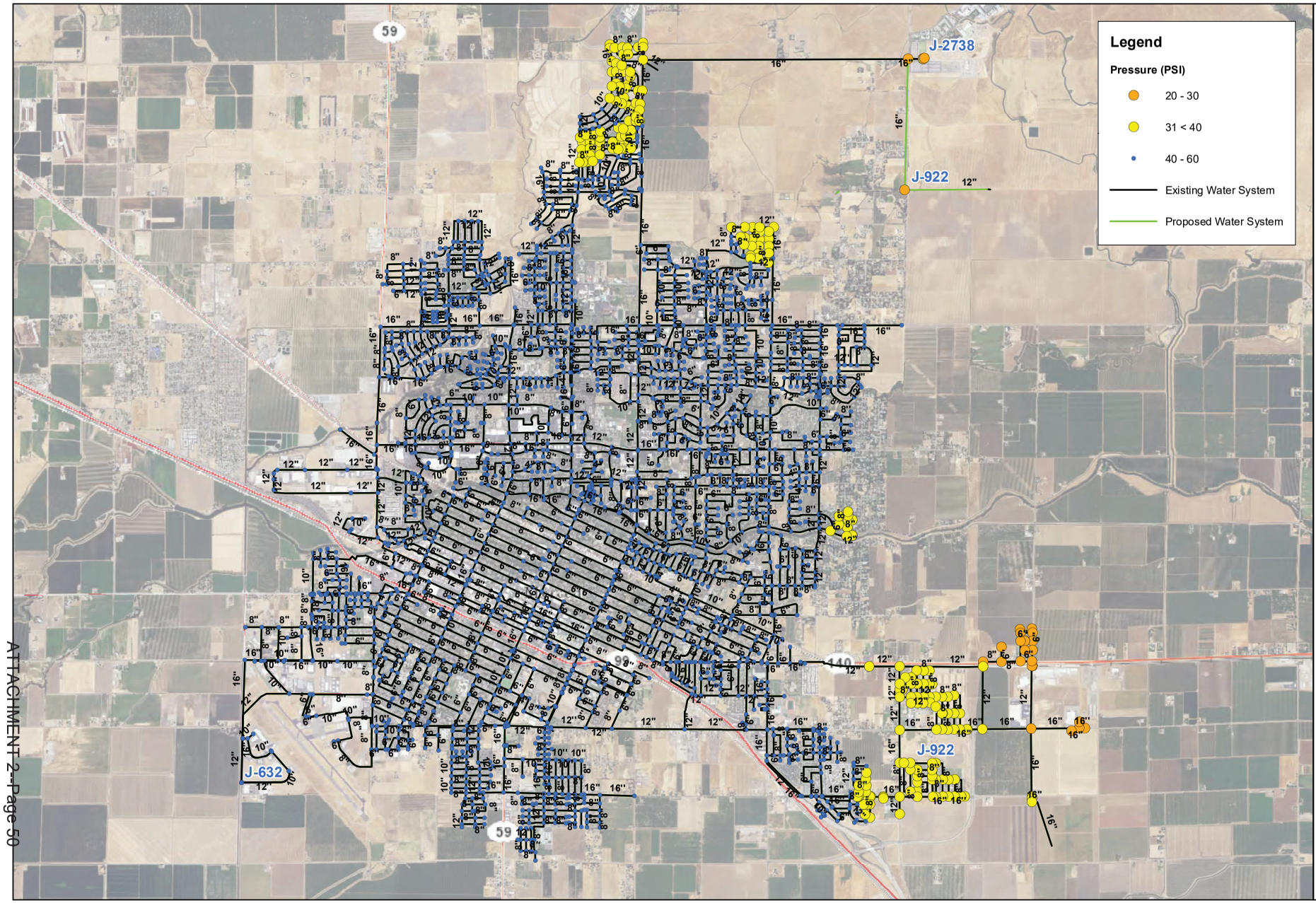

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Figure 2:

Water System Analysis Scenario 7

Existing + NT + VST PHD

1 inch = 3,500 feet

0 1,750 3,500

mkn WATER WASTEWATER REUSE

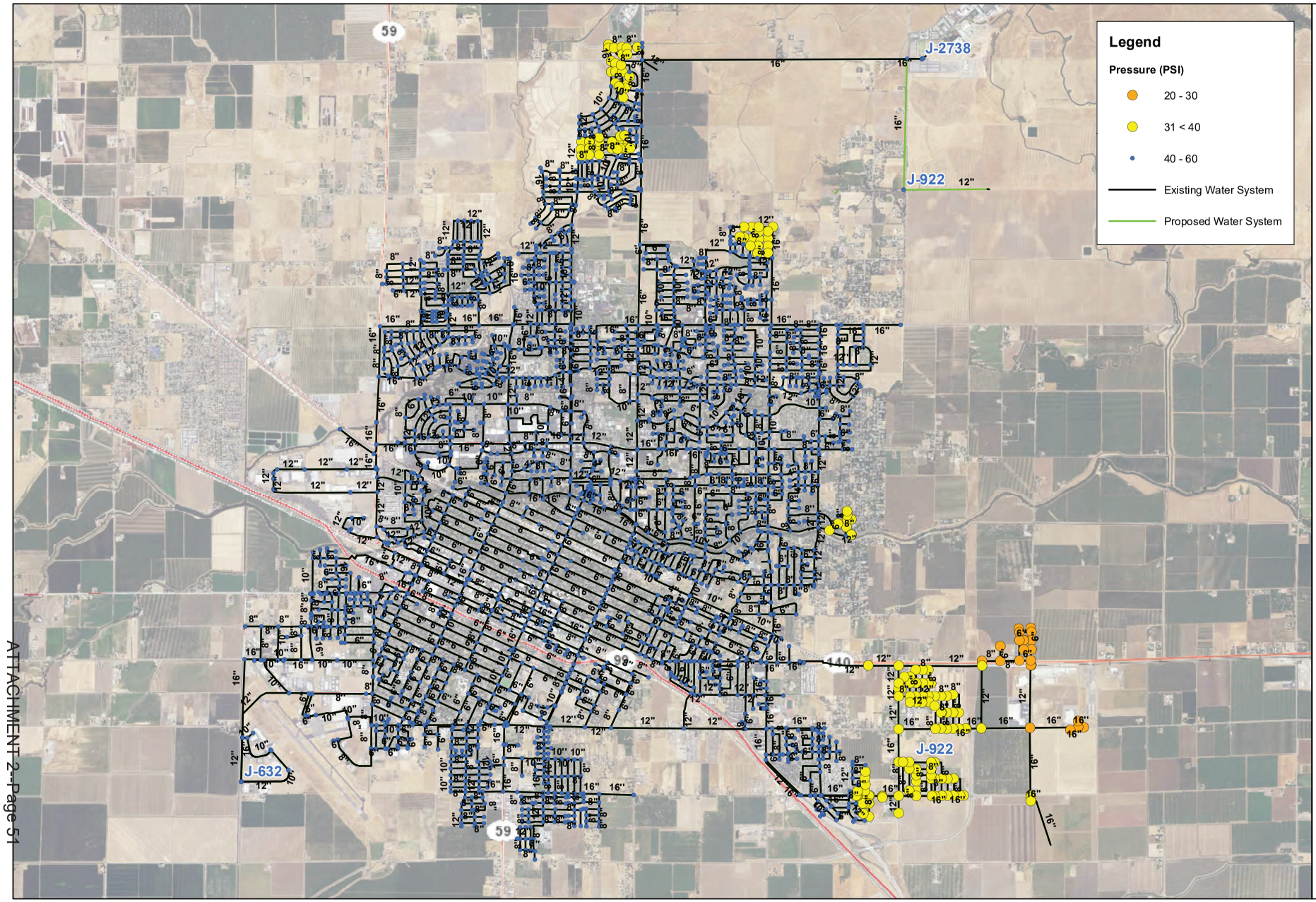

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Figure 3:

Water System Analysis
Scenario 15

New Pressure Zone
Existing + NT + VST PHD

1 inch = 3,500 feet

0 1,750 3,500

mkn WATER WASTEWATER REUSE

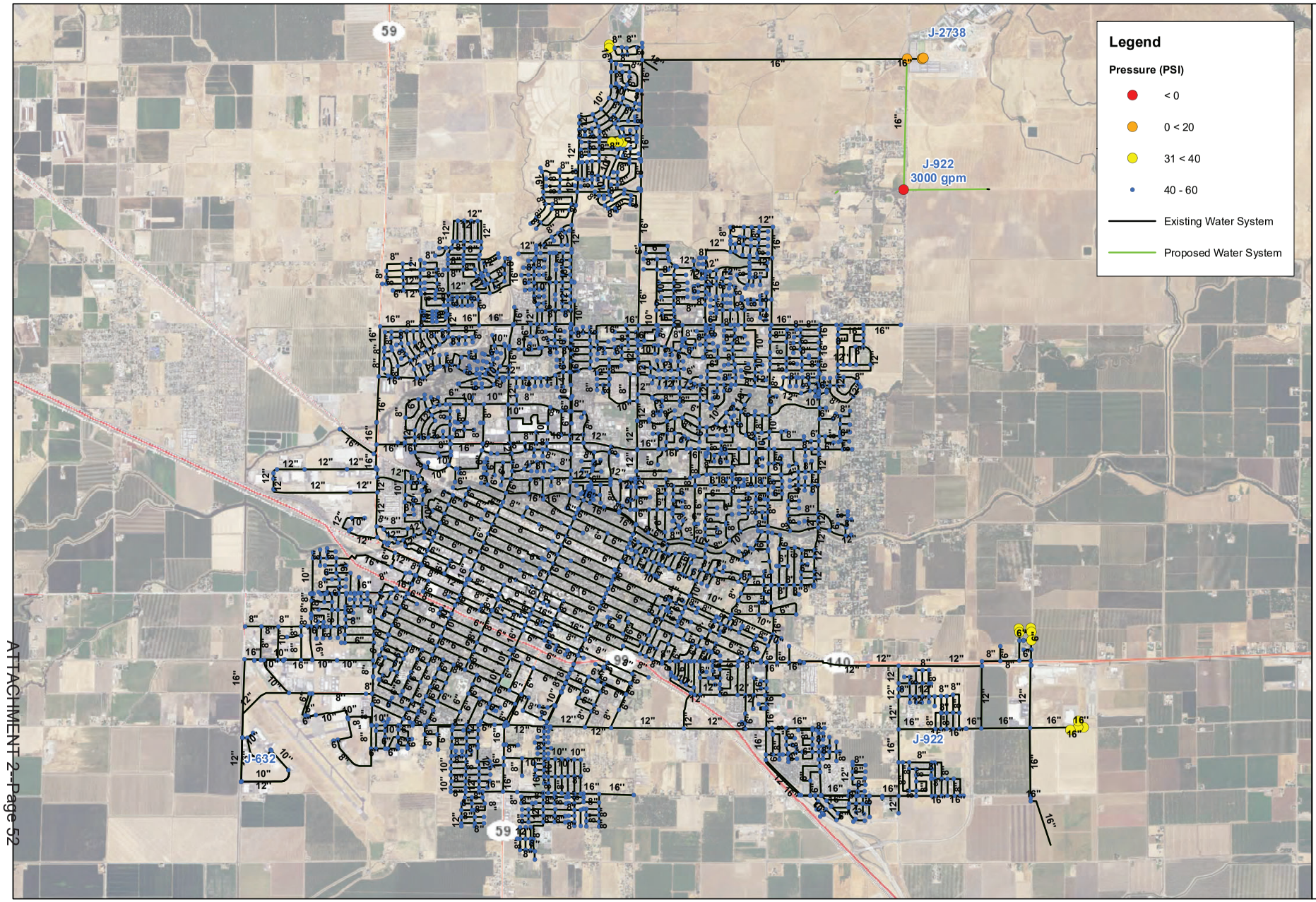

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Figure 1:

Water System Analysis
Scenario 6a

Existing + NT + VST
MDD + FF @ 3000 gpm

mkn
WATER WASTEWATER REUSE

Recommended Improvements

Based on this City-wide preliminary analysis, several offsite improvements within the City's existing water distribution system will be required to adequately serve the VST through buildout. The following improvements are recommended to serve the VST demands:

- Installation of a 16-inch pipeline and associated appurtenances from the existing water main on Bellevue Road along Lake Road to the Project site will be required. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- Installation of a Pressure Sustaining Valve (PSV) station located along Bellevue Road to create a new pressure zone. This improvement should be constructed prior to in the construction of the onsite water system facilities.
- A single larger onsite well or two smaller onsite wells will be required to serve VST through buildout.

It should be noted the final design of the onsite well(s) should take into account the combined operation of Well 17 to serve the Project demands through buildout.

Virginia Smith Trust Development - City of Merced Wastewater Collection System Hydraulic Analysis Scenario Comparison Summary
Depth of Flow/Diameter of Pipe Ratios (d/D) for Sewer Trunks Serving VST

Sewer Trunk Line	Diameter (in)	Design d/D [1]	Peak System Flows During Dry Weather				Peak System Flows During Wet Weather [3]				
			Existing System and UCM at 0.16 MGD	Existing + Near Term[4] + UCM at 0.45 MGD [2]	Existing + Near Term[4] + UCM at 0.45 MGD [2] + VST[5]	Existing + Near Term + UCM at 1.13 MGD (Stantec's Projection)	Existing System and UCM at 0.16 MGD	Existing + Near Term[4] + UCM at 0.45 MGD [2]	Existing + Near Term[4] + UCM at 0.45 MGD [2] + VST[5]	Existing + Near Term + UCM at 1.13 MGD (Stantec's Projection)	Existing + Near Term at 45 gcpd+ UCM at 0.3 MGD + VST at 45 gcpd
Bellevue Ave from UC Merced to West of Golf Rd	21	0.7	0.20	0.30	0.38	0.45	0.24	0.30	0.38	0.46	0.33
Bellevue Ave to G St	24	0.7	0.21	0.31	0.41	0.50	0.26	0.34	0.42	0.67	0.38
G St from Bellevue Ave to Yosemite Ave	27	1.0	0.29	0.56	0.68	0.76	0.36	0.89	0.96	0.94	0.81
From G St at Yosemite to Black Rascal Creek at M St	30	1.0	0.42	0.69	0.80	0.89	0.6	***1.00***	***1.00***	***1.00***	***1.00***
Black Rascal Creek from M St to R St	36	1.0	0.39	0.64	0.72	0.77	0.56	0.97	***1.00***	***1.00***	0.97
From Black Rascal Creek at R St to Intersection of Meadows Ave and Longborough Dr	39	1.0	0.35	0.62	0.69	0.73	0.55	0.91	0.97	***1.00***	0.91
Meadows Avenue from Loughborough Dr to Olive Avenue	43	1.0	0.32	0.55	0.61	0.65	0.49	0.80	0.81	***1.00***	0.80
Meadows Avenue at Olive Avenue	39	1.0	0.35	0.60	0.66	0.70	0.54	0.87	0.92	***1.00***	0.87
Meadows Avenue Olive Avenue to Devonwood Dr	42	1.0	0.35	0.57	0.63	0.66	0.53	0.81	0.86	***1.00***	0.83
Devonwood Dr from Meadows Avenue to Austin Avenue	42	1.0	0.36	0.58	0.64	0.67	0.53	0.82	0.87	***1.00***	0.82
Austin Avenue from Devonwood Dr to Oakley Avenue	42	1.0	0.35	0.57	0.62	0.65	0.52	0.79	0.86	***1.00***	0.79
From Oakley Avenue at Devonwood Dr to Willowbrook Dr	42	1.0	0.31	0.52	0.57	0.60	0.47	0.76	0.87	***1.00***	0.76
From Willowbrook Dr at Madrid Avenue to Stonybrook Avenue at Creekside Dr	42	1.0	0.34	0.54	0.59	0.62	0.49	0.81	0.94	***1.00***	0.82
Stonybrook Avenue from Creekside Dr to Brookside Dr	42	1.0	0.33	0.53	0.57	0.60	0.48	0.83	0.97	***1.00***	0.83
From Brookside Dr to Just Southeast of Stephen Grey Park	42	1.0	0.34	0.54	0.59	0.61	0.5	0.87	***1.00***	***1.00***	0.88
From Just Southeast of Stephen Grey Park to Highway 59	36	1.0	0.40	0.64	0.68	0.71	0.59	***1.00***	***1.00***	***1.00***	***1.00***
From Highway 59 to X St at Highway 140	39	1.0	0.40	0.62	0.68	0.71	0.57	***1.00***	***1.00***	***1.00***	***1.00***
From X St at Highway 140 to N West Avenue at W Childs Ave	42	1.0	0.39	0.71	0.76	0.80	0.66	***1.00***	***1.00***	***1.00***	***1.00***
From N West Avenue at W Childs Ave to Just South of Riggs Avenue	48	1.0	0.44	0.68	0.72	0.74	0.63	0.95	0.98	0.98	0.96
From Just South of Riggs Avenue to Hartley Slough Just South of W Dickenson Ferry Rd at Hartley Slough	48	1.0	0.41	0.61	0.65	0.68	0.57	0.84	0.85	0.87	0.84
Pipeline adjacent to the Hartley Slough	48	1.0	0.40	0.59	0.63	0.66	0.56	0.80	0.81	0.83	0.80
From the Hartley Slough to Entrance of WWTF	48	1.0	0.38	0.55	0.54	0.56	0.49	0.64	0.65	0.66	0.64
Pipeline to WWTF	60	1.0	0.24	0.33	0.34	0.35	0.33	0.43	0.43	0.44	0.43

Notes:

[1] Design d/D criteria per Stantec Draft 2017 Sewer Master Plan. A d/D of ***1.00*** represents surcharged conditions in the sewer trunk line.

[2] The analysis assumes UCM ultimate wastewater flow of 0.45 MGD based on an estimated 2019 average wastewater flows of 0.30 MGD and a 50% increase for ultimate conditions. The analysis will be updated to reflect UCM's existing wastewater flows and ulitmate wastewater flow projections of 0.16 MGD and 0.30 MGD, respectively.

[3] Wet weather scenarios applied wet weather peaking factors for the existing system and near term developments using the unit hydrographs in the Stantec model. Wet weather peaking factors for VST and UCM were assumed to be a 5% increase in addition to the peak dry weather flows.

[4] Near term development flows used in the analysis are based on Stantec's model inputs. The wastewater loading inputs in the Stantec model only included a single value at each manhole for existing and near term development flows, so the flows attributed to near term developments only is unknown at this time. Additional information is needed to validate the accuracy of the wastewater flows used for near term developments.

[5] VST flow projections are based on a wastewater flow factor of 58.6 gallons per capita per day (gpcd). The City's existing gpcd residential flow factor based on 2019 influent flows and population estimates is 47.14 gpcd. VST plans to implement water conservation development standards that will reduce water demands and yield wastewater flows of 35-40 gpcd.

[6] VST intends to conduct additional flow monitoring to check wet weather characteristics in other parts of the system that are newer development and validate system flows from UCM and recently constructed developments. The wastewater loading assumptions may be revised following additional flow

WaterSense® Specification for Homes, Version 2.0 Supporting Statement

1.0 Introduction

The U.S. Environmental Protection Agency's (EPA's) WaterSense program released the first version of its specification for labeled homes in 2009 with the *WaterSense Single-Family New Home Specification* and issued modifications in 2012 and 2014 to expand the scope to multifamily buildings and include minor revisions, respectively. The goal of the WaterSense Labeled Homes Program is to encourage the construction and purchase of water-efficient, high-performing homes that include water- and energy-efficient products and advanced design. The program aims to reduce indoor and outdoor water use in homes and encourage community infrastructure savings.

In February 2021, EPA released the *WaterSense Specification for Homes, Version 2.0* (hereafter referred to simply as the *WaterSense Specification for Homes,* unless the version number is necessary to include for clarity), which aims to further promote residential water efficiency and help enable market transformation in the building industry. The specification is applicable to single-family homes and multifamily buildings and can apply to new and existing homes.

EPA intends for the revised *WaterSense Specification for Homes* to:

- Provide flexibility in the technical requirements for homes constructed to the WaterSense specification without compromising overall water efficiency or performance.
- Ensure that WaterSense labeled homes are high-performing with regard to water efficiency and homeowner satisfaction.
- Provide quantifiable potential water and utility cost savings for individual homeowners.
- Improve regional applicability.
- Improve collaboration with existing green building certification programs.
- Use existing infrastructure for certification and verification purposes to ease requirements for home builders and verifiers who confirm home compliance with the specification.
- Use the WaterSense program's resources efficiently.

2.0 Current Status of Water Use in Residential Homes

New home construction is an optimal opportunity to encourage builders and homeowners to use water-efficient products and practices. To provide perspective, there were more than 1.25 million new single-family homes and multifamily units constructed in 2019,[1] representing significant cumulative water use. By encouraging water-efficient products, appliances, and design elements during construction, EPA intends to transform building practices to reduce lifetime water and energy use and utility costs.

Federal regulations have addressed water use and efficiency inside the home over the past quarter century. The Energy Policy Act of 1992 (EPAct 1992) established the maximum flush

[1] U.S. Census, 2020. *Monthly New Residential Construction, October 2020.* November 18, 2020. Table 5b. www.census.gov/construction/nrc/pdf/newresconst.pdf

volume for toilets at 1.6 gallons per flush (gpf), and the maximum flow rate for bathroom sink faucets, kitchen faucets, and showerheads at 2.5 gallons per minute (gpm). Subsequently, in 1998, the U.S. Department of Energy (DOE) adopted a maximum flow rate standard of 2.2 gpm for all faucets. In 2012 and 2016 respectively, the DOE issued new regulations mandating minimum water efficiency requirements for clothes washers and dishwashers.[2,3] The WaterSense and ENERGY STAR® programs promote water efficiency in plumbing fixtures and appliances that go beyond these national standards.

Two studies completed over the past 20 years best characterize water use in the residential sector. The American Water Works Association (AWWA) Research Foundation completed a 1999 study, *Residential End Uses of Water* (REUW1999),[4] that provided the first detailed analysis of residential water use patterns and efficiency levels in the United States. The Water Research Foundation (WRF) completed an updated study in 2016, *Residential End Uses of Water, Version 2* (REUW2016),[5] providing an expanded assessment and analysis of single-family water use across North America. REUW2016 also presents updated information about water use patterns, as compared to REUW1999. Table 2-1 summarizes the average daily per capita indoor water use for North American homes, as identified by both residential studies.

Table 2-1. Daily Indoor Per Capita Water Use

Type of Use	Daily Indoor Water Use (gallons per capita per day)	
	REUW1999	REUW2016
Toilets	18.5	14.2
Clothes washers	15.0	9.6
Showers	11.6	11.1
Faucets	10.9	11.1
Leaks	9.5	7.9
Other	1.6	2.5
Baths	1.2	1.5
Dishwashers	1.0	0.7
Total	**69.3**	**58.6**

Over the 15-year period between the two REUW studies, residential per capita indoor water use decreased 15.4 percent. While this reduction is significant, there are still opportunities for additional water savings. A 2011 study by William DeOreo found that new homes built with high-

[2] DOE, 2012. Energy Conservation Program: Energy Conservation Standards for Residential Clothes Washers. Direct Final Rule. May 31,2012. www.regulations.gov/document?D=EERE-2008-BT-STD-0019-0041
[3] DOE, 2016, Energy Conservation Program: Energy Conservation Standards for Residential Dishwashers; Final Rule. December 13, 2016. www.regulations.gov/document?D=EERE-2014-BT-STD-0021-0033
[4] Mayer, Peter W. et al., 1998. *Residential End Uses of Water.* Published by the AWWA Research Foundation and American Water Works Association.
[5] DeOreo, William B., Peter Mayer, Benedykt Dziegielewski, and Jack Kiefer, 2016. *Residential End Uses of Water, Version 2.* Published by the Water Research Foundation.

efficiency plumbing fixtures, appliances, and design practices (considered to be roughly equivalent to homes built to the *WaterSense Specification for New Homes, Version 1.0*) had an average indoor daily per capita water use of 36.7 gallons per day, which is 37 percent more water-efficient than North American homes surveyed for REUW2016.[6] EPA intends for the *WaterSense Specification for Homes, Version 2.0* to serve as a resource to help achieve additional household water savings.

The WaterSense Labeled Homes Program is an initiative designed to actively promote the transformation of the mainstream homebuilding industry towards increased water efficiency. Through the revised specification and resulting program structure, EPA intends to collaborate directly with existing green home building programs to promote a national ethic of water efficiency. By affirming the technical efficacy of existing home certification programs with regard to water efficiency, WaterSense aims to raise the profile of water efficiency in the broader green building industry. Through recognition of homes that meet specific performance and efficiency criteria, WaterSense hopes to drive builder and consumer confidence during the home buying process.

3.0 Definitions

For definitions related to the revised WaterSense Labeled Home Program, refer to the *WaterSense Home Certification System* and *WaterSense Technical Evaluation Process for Approving Home Certification Methods.*

4.0 Overview of Program Changes in Version 2.0

Motivation for Revision

Based on feedback from stakeholders, years of program operation, and changes in the home building marketplace that have occurred over the last decade, EPA has decided to revise its specification and certification process for WaterSense labeled homes. Since the original specification was introduced in 2009, water-efficient products have become more accessible and effective, and consumer demand for water-efficient homes has increased. With Version 2.0, WaterSense aims to accommodate a broader network of water efficiency professionals interested in participating in the WaterSense Labeled Homes Program, which had been limited in the original program structure. The revision also allows WaterSense to acknowledge a growing number of regional home certification and/or labeling programs operating across the United States.

With this revision, EPA: 1) requires that homes meet a minimum set of quality performance criteria (via a mandatory checklist); and 2) requires that homes meet an efficiency requirement (set at 30 percent more water-efficient than a home with characteristics typical of new construction, based on national standards, and common design and landscape practices). This specification structure reduces the prescriptive requirements (with the exception of key WaterSense labeled plumbing products) and focuses on WaterSense's main objective of saving water, while allowing builder partners to choose the approach that best fits their market, and strategy. Under the revised specification and certification structure, EPA recognizes credible certification programs or standards that have valid approaches to demonstrate compliance with the water efficiency requirement for homes. EPA also allows the programs to offer the WaterSense label in ways conducive to their existing structures and the needs of their

[6] DeOreo, William B, 2011. *Analysis of Water Use in New Single-Family Homes.*

stakeholders. By encouraging other organizations to administer the program and issue the WaterSense label in conjunction with their existing certifications, the revised specification increases flexibility among, and access to, a larger network of home verifiers. Builder partners, in turn, are able to choose home certification programs that suit their needs and the needs of their customers. The flexibility inherent in the revision allows for the inclusion of regional or local programs that could better address regional climate variability and local water efficiency priorities.

By adding flexibility to the technical requirements, as well as to the program and certification structure, EPA seeks to increase the reach of the WaterSense Labeled Homes Program and make it possible for more homes to earn the WaterSense label, while maintaining an equal (or greater) level of water efficiency and performance.

Revised Program Structure

Home Certification Organizations (HCOs) are central to the revised program structure. HCOs are responsible for implementing a program for the verification, certification, and labeling of homes for WaterSense. They are responsible for submitting a Proposed Certification Method (PCM), which details the methodology and protocols the HCO intends to use to determine whether a home meets the water efficiency requirements included in the *WaterSense Specification for Homes*. Other than requiring that homes include specific WaterSense labeled plumbing products and be free of water leaks, WaterSense does not dictate the specific requirements that a PCM must contain or the structure under which certification is granted.

EPA evaluates and approves HCOs to ensure they have the capability, competence and proper controls to certify and label homes for WaterSense. EPA also evaluates and approves the HCO's PCM to ensure that: 1) the method was developed in a fair and transparent manner; and 2) homes certified in accordance with the PCM and meeting the efficiency level or requirements the HCO has specified for WaterSense, will consistently meet WaterSense's efficiency requirement. EPA has developed a technical evaluation process to test the PCM's technical effectiveness, which is discussed in more detail in Section 7.0. Upon evaluation and approval by EPA, the PCM becomes a WaterSense Approved Certification Method (WACM). Hereafter, EPA uses the term WACM to refer to the approved certification method with the threshold or specific requirements the HCO has designated to earn the WaterSense label. WaterSense will periodically review WACMs for efficacy and maintain oversight of the HCOs' implementation and use of the WaterSense label.

Home builders that partner with WaterSense can achieve certification through an HCO of their choosing. Candidate homes must be verified and certified in accordance with the *WaterSense Specification for Homes* and the HCO's WACM requirements to earn the WaterSense label. Trained WaterSense home verifiers (verifiers) are responsible for inspecting homes to determine whether they meet these requirements.

Documents Associated With the Revision

This supporting statement describes three documents associated with the specification revision: the *WaterSense Specification for Homes*; the *WaterSense Home Certification System*; and the *WaterSense Technical Evaluation Process for Approving Home Certification Methods*. These three documents used in concert comprise the revised WaterSense Labeled Homes Program structure. This supporting statement describes the purposes of the components in each document.

5.0 WaterSense Specification for Homes

The revised specification establishes technical criteria that homes must meet to earn the WaterSense label. The specification contains two components: 1) the Mandatory Checklist; and 2) the water efficiency requirement.

Mandatory Checklist

In addition to an overall water efficiency requirement (discussed below), homes must meet all requirements included on the Mandatory Checklist for WaterSense Labeled Homes, listed in Appendix B of the *WaterSense Specification for Homes*. This includes WaterSense labeled plumbing fixtures (i.e., toilets, lavatory faucets and showerheads), which have been independently certified to perform as well or better than standard models, while also using less water. In addition, WaterSense labeled homes are also required to pass a pressure-loss test on all water supply lines, which indicates the absence of leaks. For a home to earn the label, there may not be visible leaks from specified elements of the plumbing system—including the plumbing fixtures identified above—or from other water-using systems and appliances installed in the home at the time of verification. Leaks can adversely impact a home's water use and result in added homeowner costs or even property damage.

The Mandatory Checklist is intended to ensure that all WaterSense labeled homes, regardless of the HCO or WACM under which they are certified, contain a minimum set of features that will meet homeowners' expectations for product performance. For the Mandatory Checklist, EPA selected items that are universally applicable to all homes and have minimal incremental cost.

Although the Mandatory Checklist does not include outdoor requirements (beyond requiring irrigation systems to be leak-free), outdoor components are still part of the revised WaterSense homes specification. Based on the structure of EPA's technical evaluation, discussed in Section 7.0, homes with the expectation of significant outdoor water use would not meet the water efficiency requirements without accounting for and reducing outdoor water use.

Table 5-1 presents the requirements of the Mandatory Checklist.

MEMORANDUM

To: Stephen Peck | Peck Planning and Development
From: Henry Liang, PE | MKN & Associates
Rob Lepore, GISP | MKN & Associates
Jason Wong, EIT | MKN & Associates
Date: July 20, 2020

Re: VST Wastewater Study - Recommended Improvements to Mitigate Surcharging Along West Avenue in Buildout Scenarios

Background

Stantec developed the wastewater collection system model using PCSWMM as part of the City's current wastewater collection system master plan update. The model included the existing, near-term (entitled developments), and buildout scenarios. MKN used this model to analyze scenarios that included the Virginia Smith Trust (VST) development and reduced U.C. Merced (UCM) wastewater flows. Our preliminary findings indicate under the "near-term" scenario that includes all entitled developments and the VST development, the City's existing wastewater collection system will experience surcharging throughout several parts of the system. Most of the surcharging remains within 1 foot above the top of pipe, which is acceptable when the pipe is greater than 8' deep. However, the portion of the existing system along West Avenue experiences surcharging exceeding 1 foot above the top of pipe. The following memo describes the collection system analysis and suggested capital improvements to mitigate the surcharging along West Avenue.

Model Wastewater Loading

The Stantec model used a residential wastewater dry weather loading factor of 85 gallons per capita per day (gpcd). This value was reduced to 45 gpcd for the VST and entitled developments, because 45 gpcd is the City's existing dry weather residential wastewater loading factor as explained in the MKN City of Merced Per Capita Wastewater Flows Memorandum dated July 9, 2020. The existing system residential flows were not lowered, as the existing system was validated through flow monitoring data completed in 2019.

Stantec's near term scenario also assumed U.C. Merced's wastewater flows would increase to 1.13 mgd. This value was decreased to 0.3 mgd to represent actual and projected flows reported by U.C. Merced.

Analysis Criteria

Collection system pipe capacity was determined in the model by analyzing depth over pipe diameter (d/D) ratios. The Draft 2017 Collection System Master Plan uses the following criteria for capacity:

- d/D shall be a maximum of 0.70 for gravity flow trunk sewers with diameters up to 24 inches.
- d/D shall be a maximum of 1.00 for gravity flow trunk sewers with diameters greater than 24 inches.
- When the manhole rim elevation is less than 8-feet above the exit pipe crown elevation, no surcharging is allowed.
- When the manhole rim elevation is equal to or greater than 8-feet above the exist pipe crown elevation, up to 1-foot of surcharging above the top of pipe is acceptable.

Analysis Results

Under the wet weather flow scenarios (scenarios including inflow and infiltration flows) including the entitled and VST developments, the analysis indicates the existing collection system will encounter pipe surcharging issues in the West Avenue Trunk. The model projections indicate the segments between Bear Creek and North Childes Avenue will be subject to at least 1 foot of surcharging, which exceeds the City's allowable d/D criteria. The excessive surcharged conditions stop south of North Childs Avenue, which is where the trunk line increases in diameter from 3.5-feet to 4.0-feet. Surcharging is also projected to occur in the G Street trunk line from Yosemite Ave to Black Rascal Creek, but the results indicate the surcharging is less than the allowable 1-foot above top of pipe criteria; therefore, the surcharging along G Street is within the City's allowable d/D criteria and does not need to be remedied.

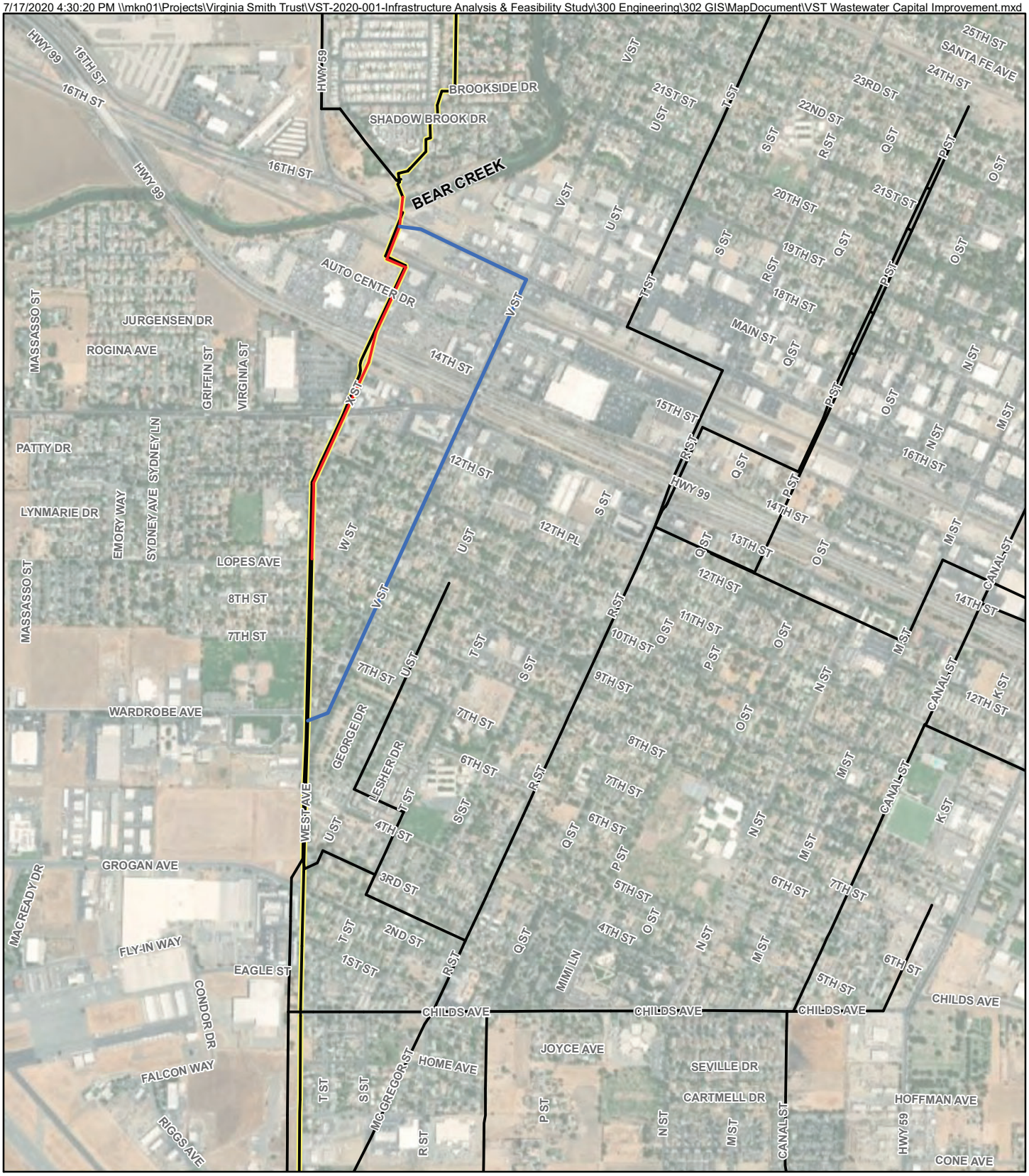
It is important to note that in the various modeling scenarios (dry and wet weather flows under several phasing scenarios), surcharging only occurs in peak wet weather scenarios. The City's existing wastewater collection system can handle all currently approved development (entitled, VST, and UCM expansion). The 2019 flow monitoring data collected by Stantec in 2019 shows that stormwater inflow and infiltration (I&I) can account for over 50% of the peak wet weather flows in the older parts of the sewer system that are likely in need of rehabilitation or replacement. The Stantec model currently applies these same wet weather peaking factors globally throughout the system, including in new developments where new wastewater collection systems are unlikely to experience any significant I&I increases. Therefore, MKN recommends performing additional flow monitoring focusing on the pipe segments serving VST, UCM, and a large portion of the entitled developments to verify wet weather flows and update the model to reflect accurate wet weather peaking factors, particularly in the new or recently constructed portions of the sewer system.

Recommended Capital Improvements to Serve Entitled and VST Developments

In order to address the projected surcharging under the scenario described above, MKN recommends installing a 30-inch trunk line that would run parallel to the West Avenue Trunk. No other improvements are necessary to serve existing development, buildout of the entitled developments, full buildout of VST, and full buildoug of UCM. The trunk line would connect on 16th Street immediately south of Bear Creek and would run along V Street until it connects on Wardrobe Avenue (see Figure 1). This pipeline is sized to accommodate the entitled and VST developments, which is 6.5 mgd. This 30-inch trunk line could be smaller, based on flow monitoring and validation of the City's actual wet weather flows in new parts of the system. The pipeline was sized based on normal depth flow (not surcharging) under uniform flow conditions with a d/D of up to 0.9. Using a similar per unit price cost from the Draft 2017 Master Plan, the estimated total cost of this capital improvement is approximately $3.24M (see table below).

Cost Estimate for Parallel Trunk Line along 16th Street and V Street					
Item	**Description**	**Quantity**	**Unit**	**Unit Price**	**Amount**
1	Mobilization/Demobilization (5% of construction subtotal)	1	LS	$88,900	$89,000
2	Furnish and Install 30-inch Pipeline	5,630	LF	$277	$1,558,000
3	Furnish and Install Steel Casing Across HWY 99	300	LF	$500	$150,000
4	Manhole Structures	11	EA	$20,000	$220,000
				Construction Cost Subtotal	$2,024,000
				Administration, Engineering and Construction Management (30% of Construction Subtotal)	$607,000
				Contingency (30% of Construction Subtotal)	$607,000
				Estimated Total Project Cost	$3,238,000

7/17/2020 4:30:20 PM \\mkn01\Projects\Virginia Smith Trust\VST-2020-001-Infrastructure Analysis & Feasibility Study\300 Engineering\302 GIS\MapDocument\VST Wastewater Capital Improvement.mxd



Legend

- Existing Pipes with Surcharge Over 1 ft
- Existing Pipes
- Parallel Trunk Main Along 16th St & V St
- Pipes Serving VST

0 600 1,200

1 inch = 1,200 feet

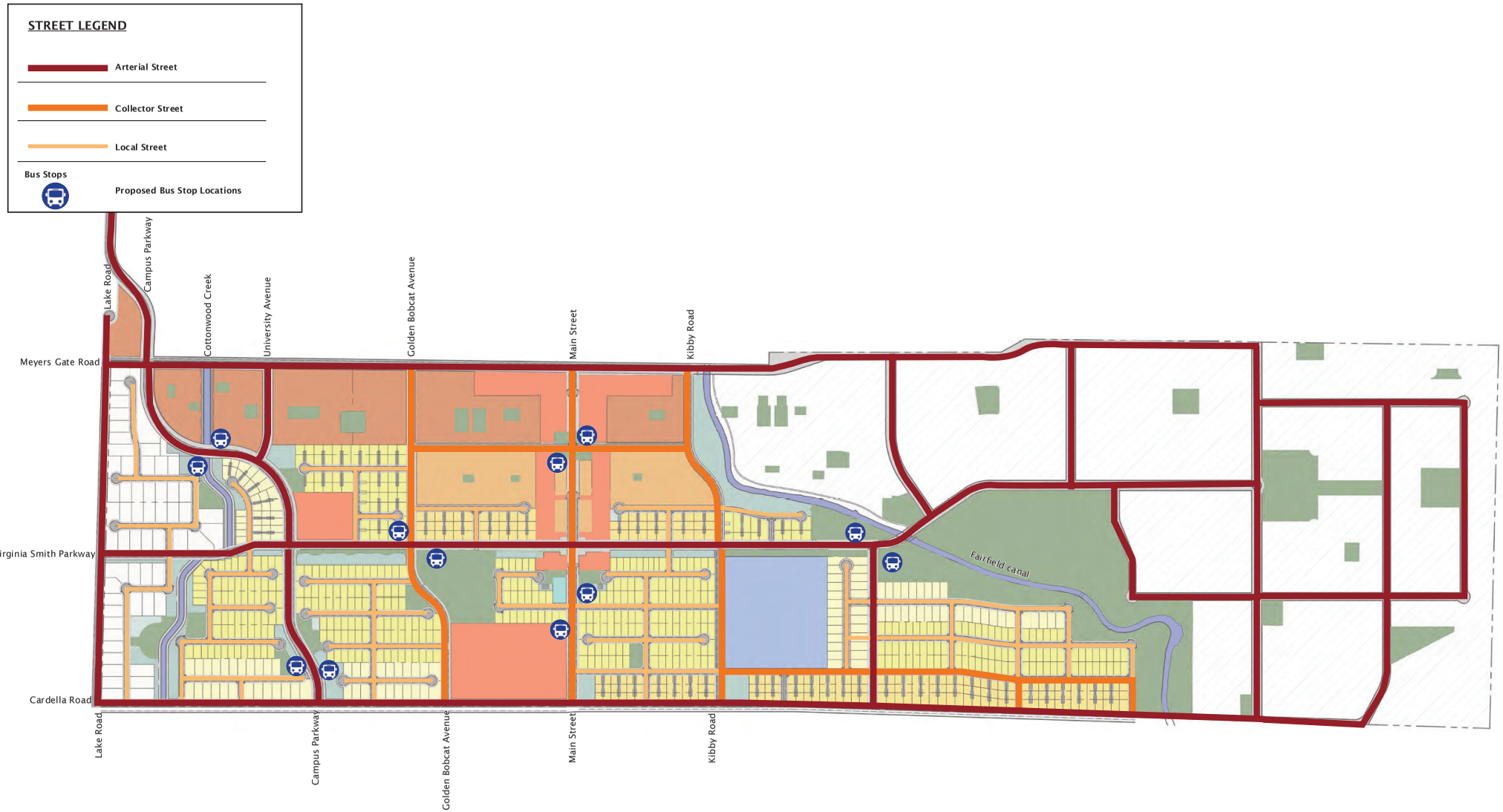
Figure 1

Existing Surcharging and Recommended Capital Improvement

Virginia Smith Trust
Infrastructure Analysis and Feasibility Study

Attachment 5

Project Design Features and Amenities
Including Circulation Features, Parks and
Project Elevations and Illustrations



VIRGINIA SMITH TRUST

BUS AND STREET NETWORK

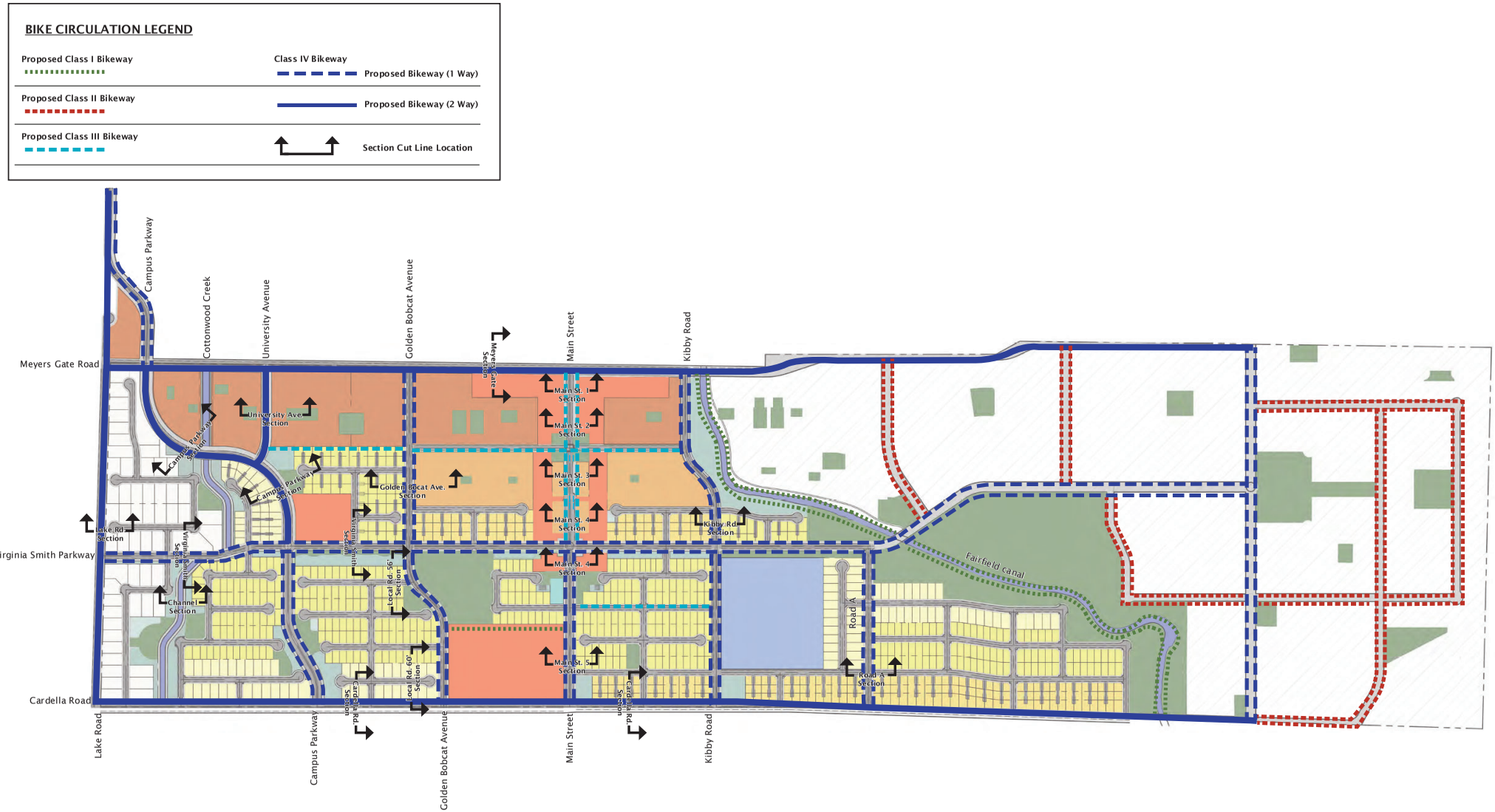
Virginia Smith Trust Land Plan and Vesting Tentative Map

0' 75' 150' 300' 450'

rrm design group

SCALE 1" = 150'

DECEMBER 2020



ATTACHMENT 2--Page 66

OVERALL CIRCULATION PLAN

Virginia Smith Trust Land Plan and Vesting Tentative Map

0' 75' 150' 300' 450'

rrm design group

SCALE 1" = 150'

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

- *Planatus Racemosa* / **Sycamore**

Parkway Trees:

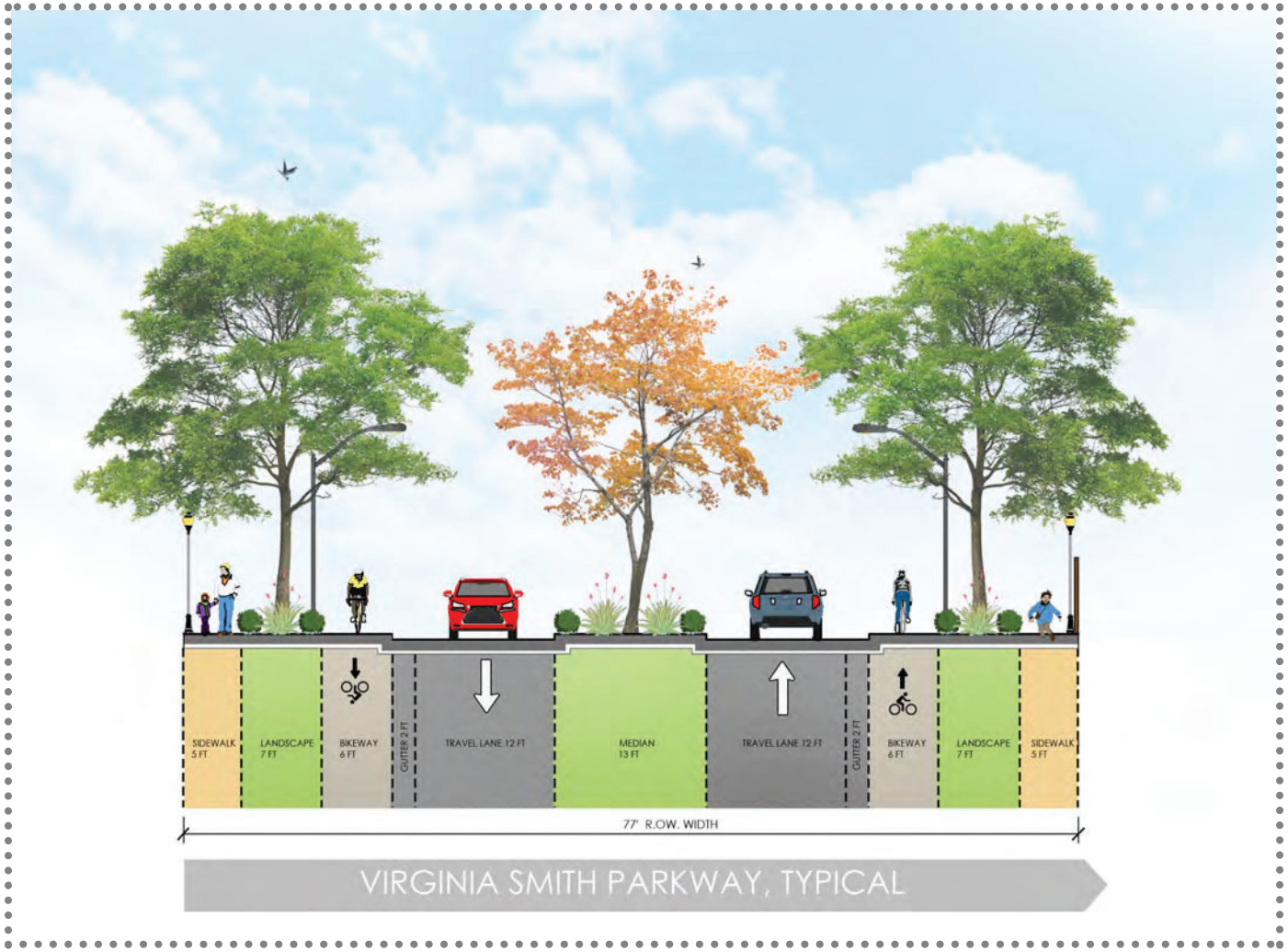
- *Pistacia Chinensis* / **Chinese pistache**
- *Cedrus Deodara* / **Deodar cedar**

Virginia Smith Parkway w/Linear Park Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:
- *Planatus Racemosa* / **Sycamore**

Parkway Trees:
- *Pistacia Chinensis* / **Chinese pistache**
- *Cedrus Deodara* / **Deodar cedar**

ATTACHMENT 2--Page 68

VST VIRGINIA SMITH TRUST

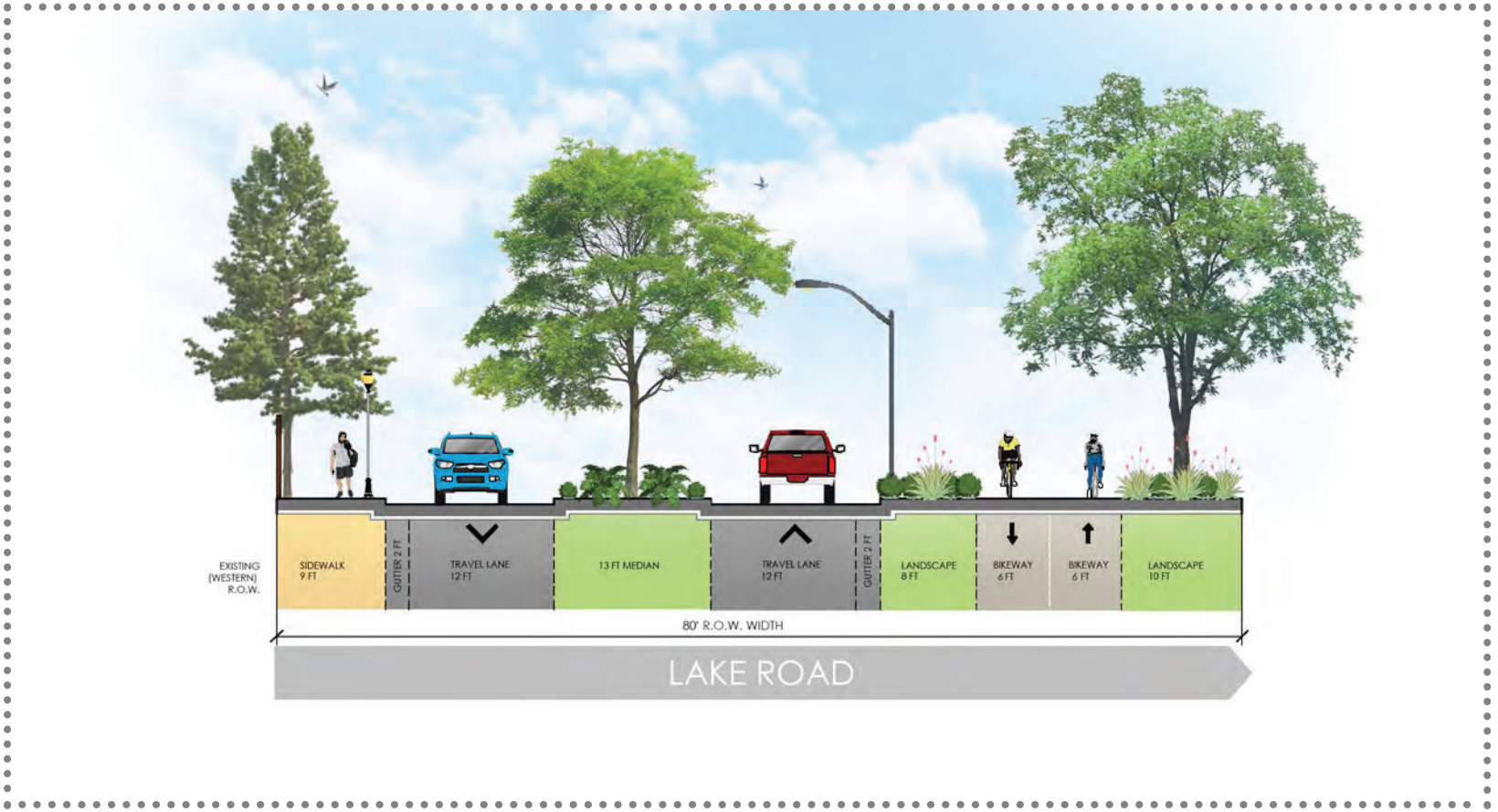
rrm design group

Virginia Smith Parkway, Typical Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:
- *Planatus Racemosa* / **Sycamore**

Parkway Trees:
- *Quercus lobata* / **Valley Oak**
- *Cedrus Deodara* / **Deodar cedar**

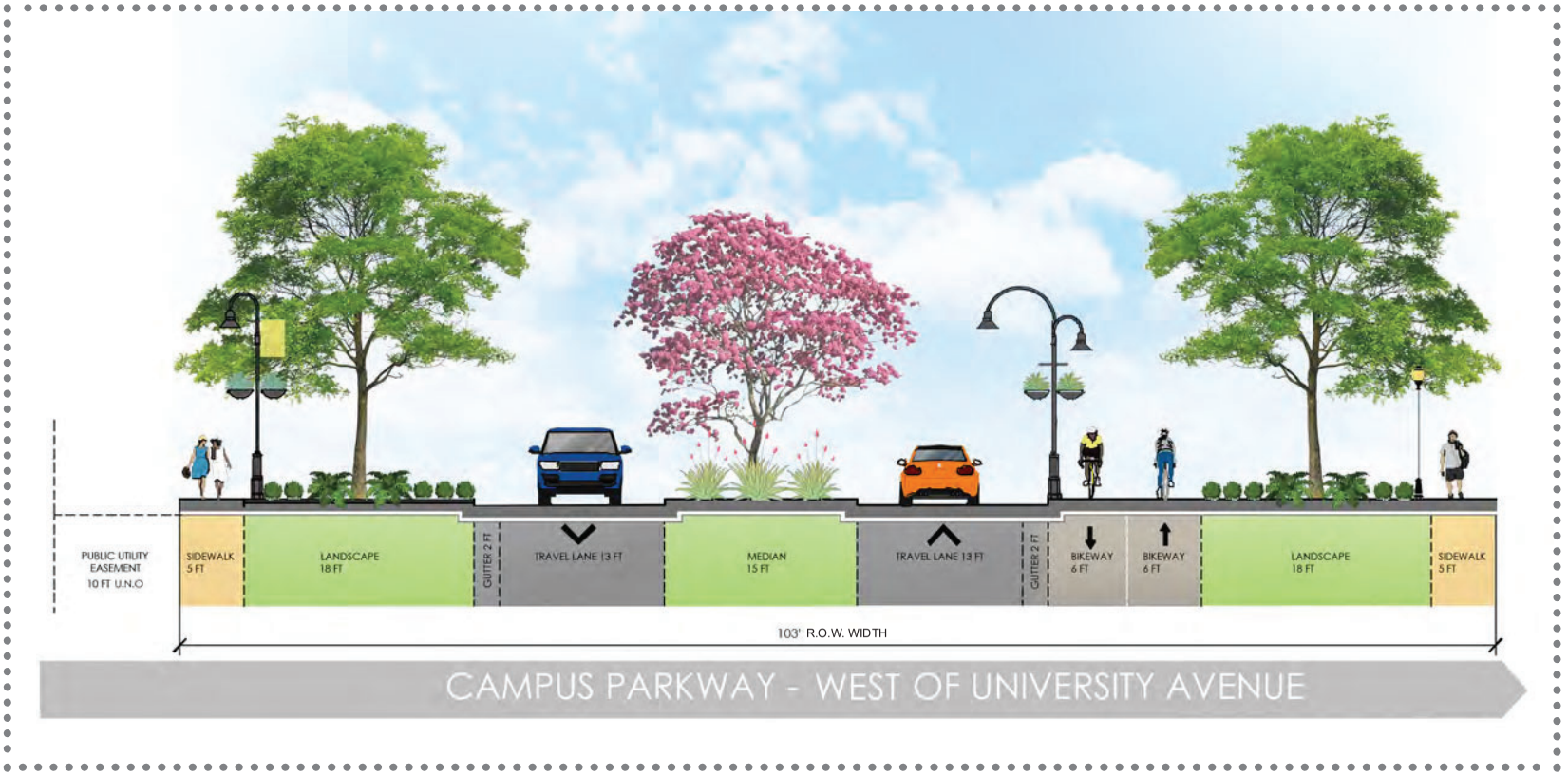
VST VIRGINIA SMITH TRUST | rrm design group

Lake Road Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:
- *Planatus Racemosa* / **Sycamore**

Parkway Trees:
- *Prunus x Yedoensis* / **Flowering cherry**
- *Zelkova serrata 'Village Green'* / **Village Green zelkova**

ATTACHMENT 2--Page 70

VST VIRGINIA SMITH TRUST

rrm design group

Campus Parkway - West of University Avenue Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:
- *Planatus Racemosa* / **Sycamore**

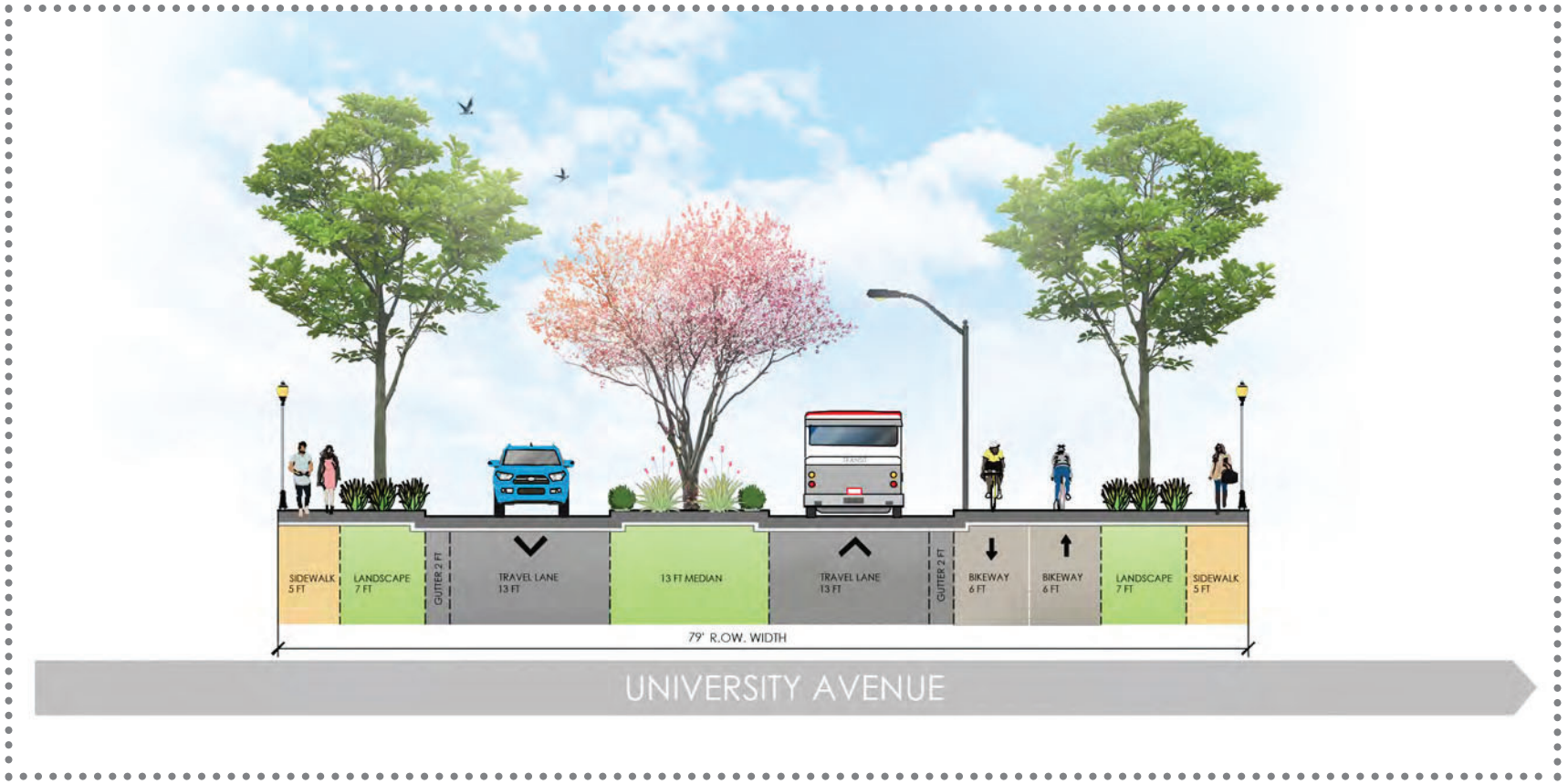
Parkway Trees:
- *Prunus x Yedoensis* / **Flowering cherry**
- *Zelkova serrata 'Village Green'* / **Village green zelkova**

Campus Parkway - East of University Avenue Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:
- *Brachychiton Populneus* / **Bottle tree**

Parkway Trees:
- *Koelreuteria Bipinnata* / **Chinese flame tree**

University Avenue Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

- *Planatus Racemosa* / **Sycamore**

Parkway Trees:

- *Malus spp.* / **Flowering crabapple**

Main Street Section 1 - Uptown North of Virginia Smith Parkway Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

· *Pistacia Chinensis* / **Chinese pistache**

Parkway Trees:

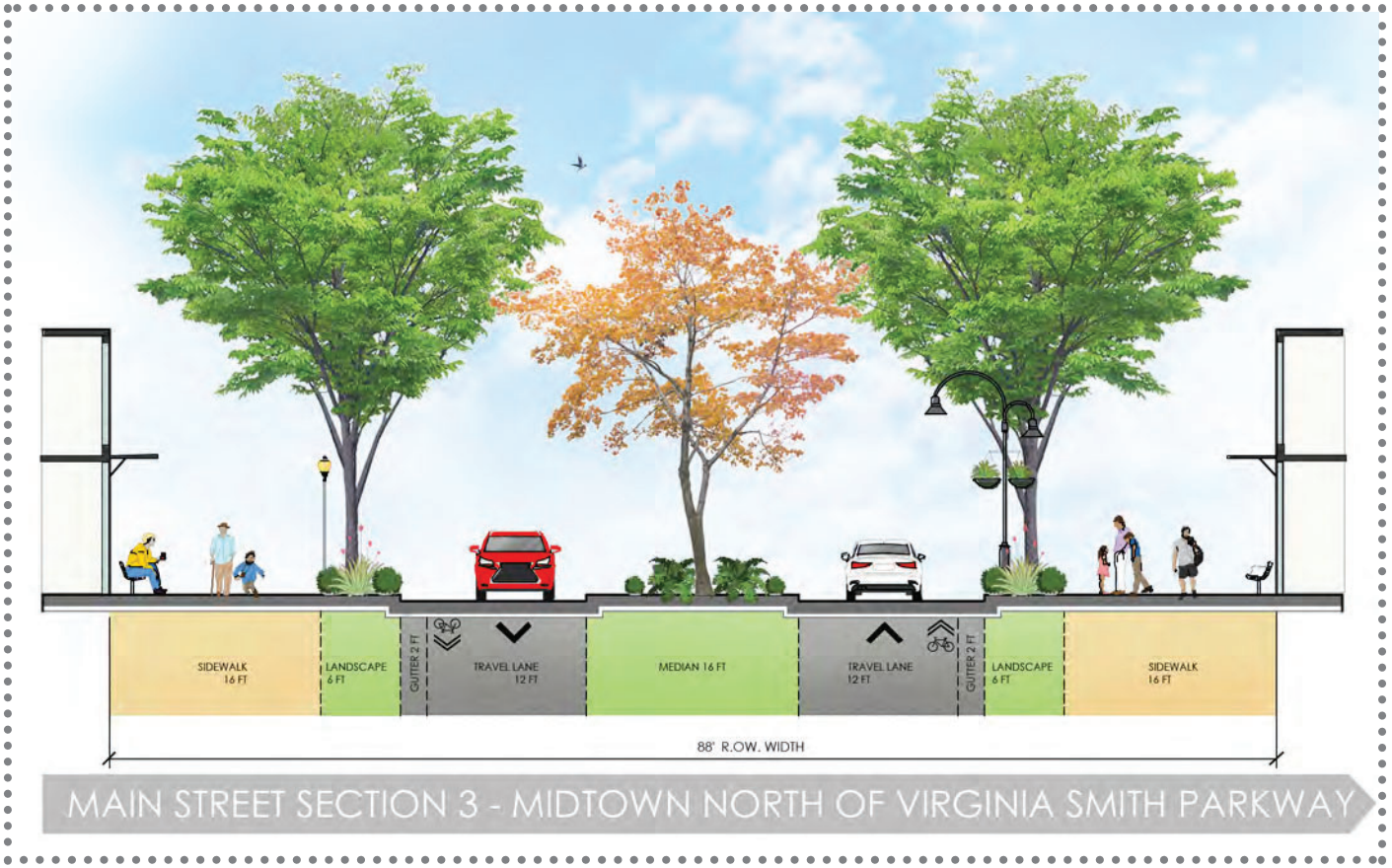
· *Zelkova serrata 'Village Green'* / **Village green zelkova**

Main Street Section 2 - Uptown North of Virginia Smith Parkway Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

· *Pistacia Chinensis* / **Chinese pistache**

Parkway Trees:

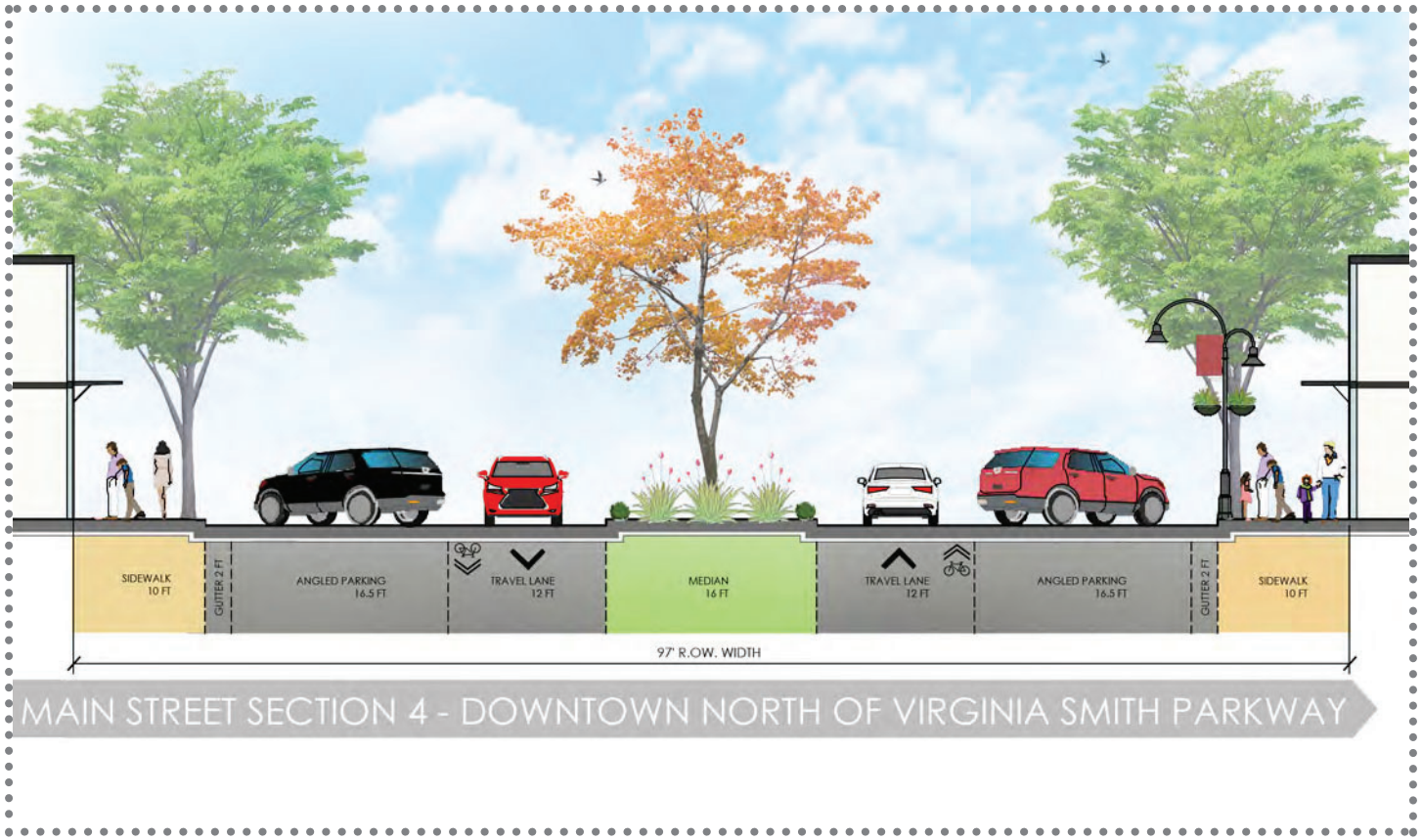
· *Zelkova serrata 'Village Green'* / **Village green zelkova**

Main Street Section 3 - Midtown North of Virginia Smith Parkway Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

· *Pistacia Chinensis* / **Chinese pistache**

Parkway Trees:

· *Zelkova serrata 'Village Green'* / **Village green zelkova**

Main Street Section 4 - Downtown North of Virginia Smith Parkway Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

- *Malus spp.* / **Flowering crabapple**

Parkway Trees:

- *Zelkova serrata 'Village Green'* / **Village green zelkova**

Main Street Section 5 - South of Virginia Smith Parkway Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

· *Ulmus parvifolia 'Frontier'* / **Frontier Elm**

Parkway Trees:

· *Populus fremontii*/ **Western Cottonwood**

ATTACHMENT 2--Page 78

VST VIRGINIA SMITH TRUST

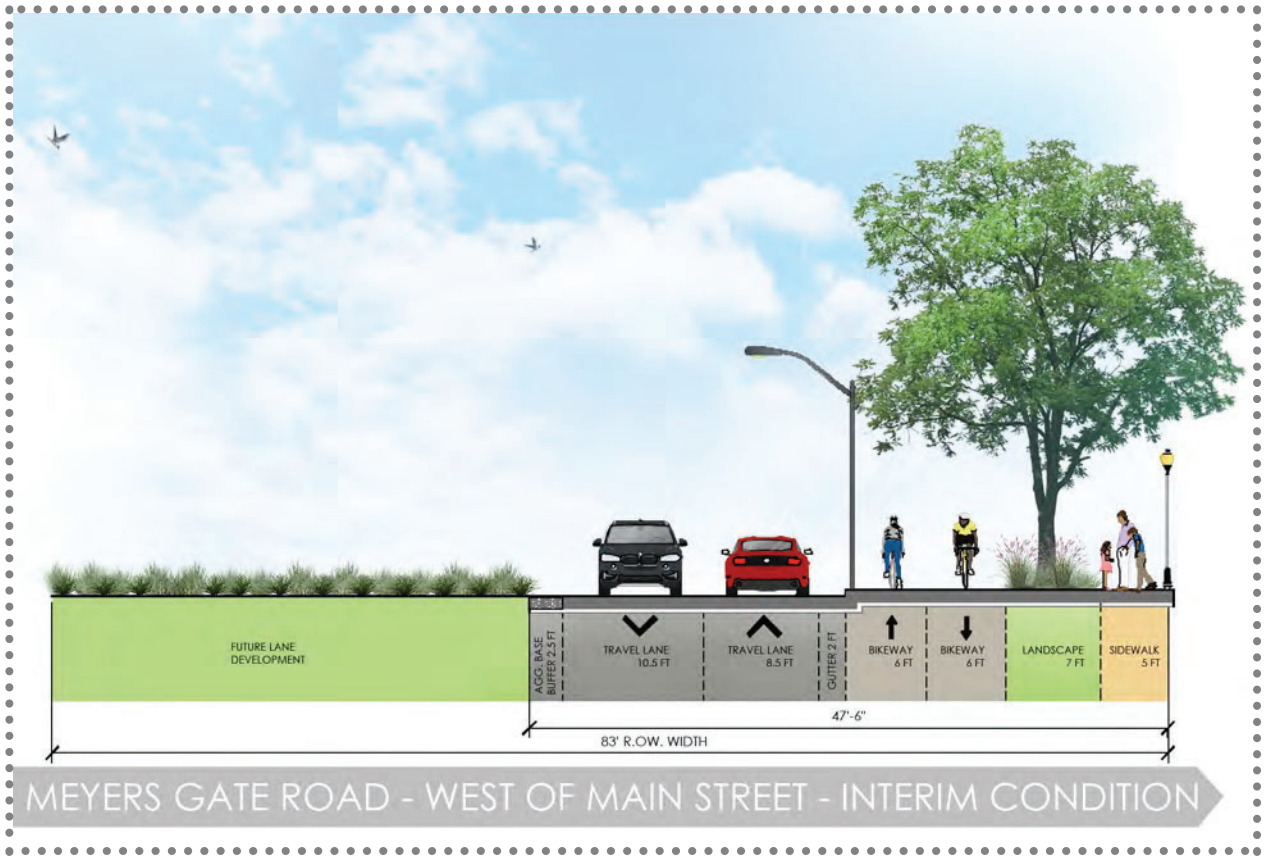
rrm design group

Meyers Gate Road - West of Main Street Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

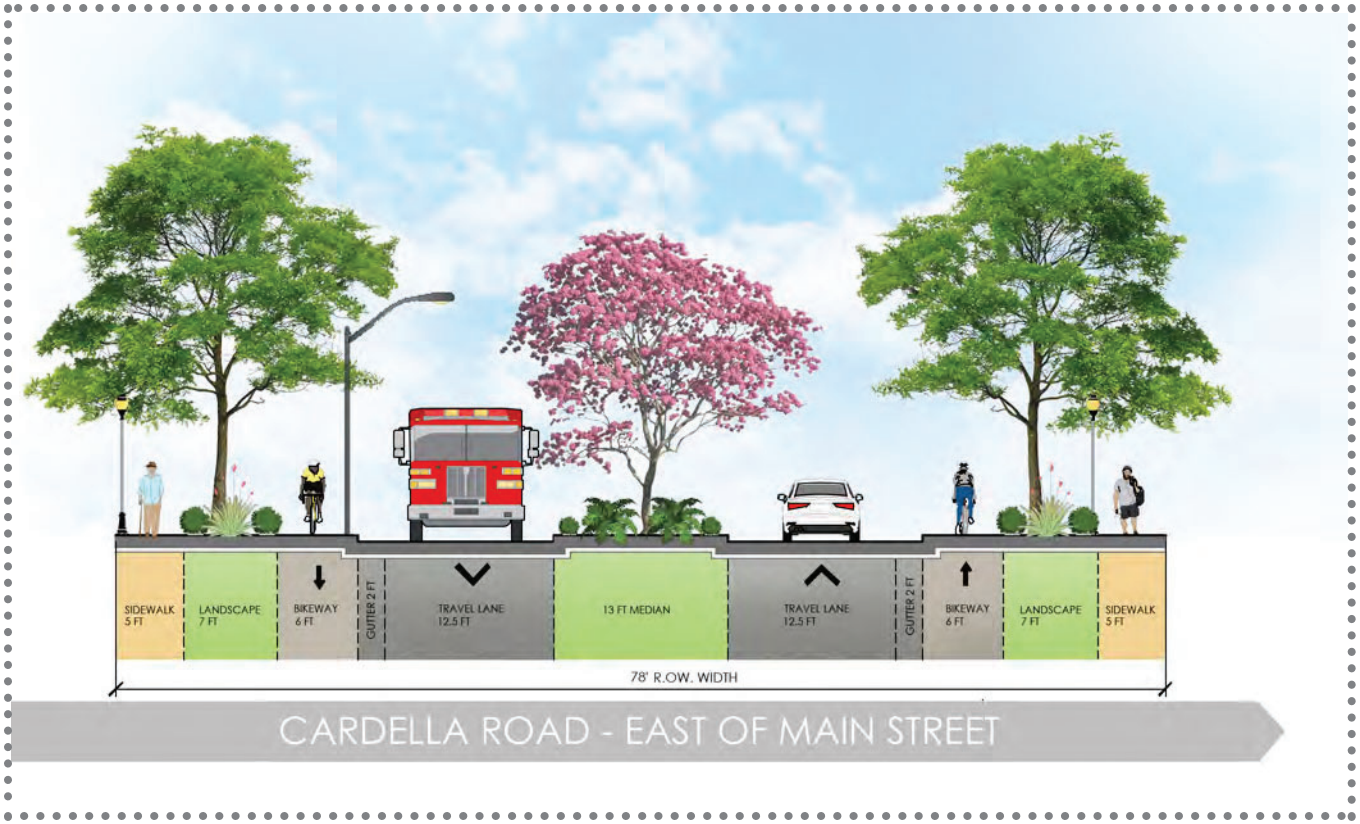
· *Ulmus parvifolia 'Frontier'* / **Frontier Elm**

Meyers Gate Road - West of Main Street - Interim Condition Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

· *Ulmus parvifolia 'Frontier'* / **Frontier Elm**

Parkway Trees:

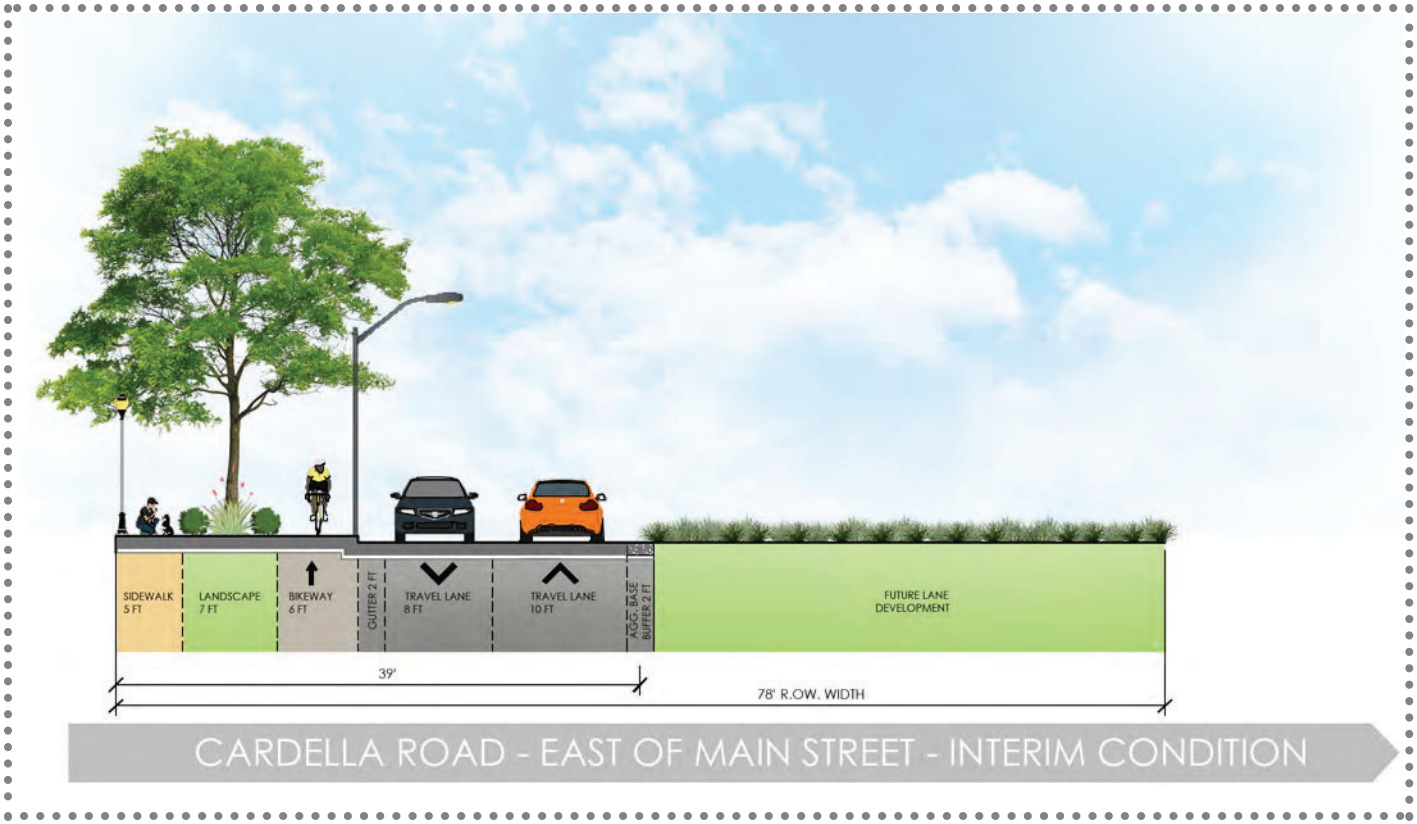
· *Populus fremontii*/ **Western Cottonwood**

Cardella Road - East of Main Street - Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Cardella Road - East of Main Street - Interim Condition Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

- *Planatus Racemosa* / **Sycamore**

Parkway Trees:

- *Quercus lobata* / **Valley Oak**
- *Cedrus Deodara* / **Deodar cedar**

ATTACHMENT 2--Page 82

VST VIRGINIA SMITH TRUST

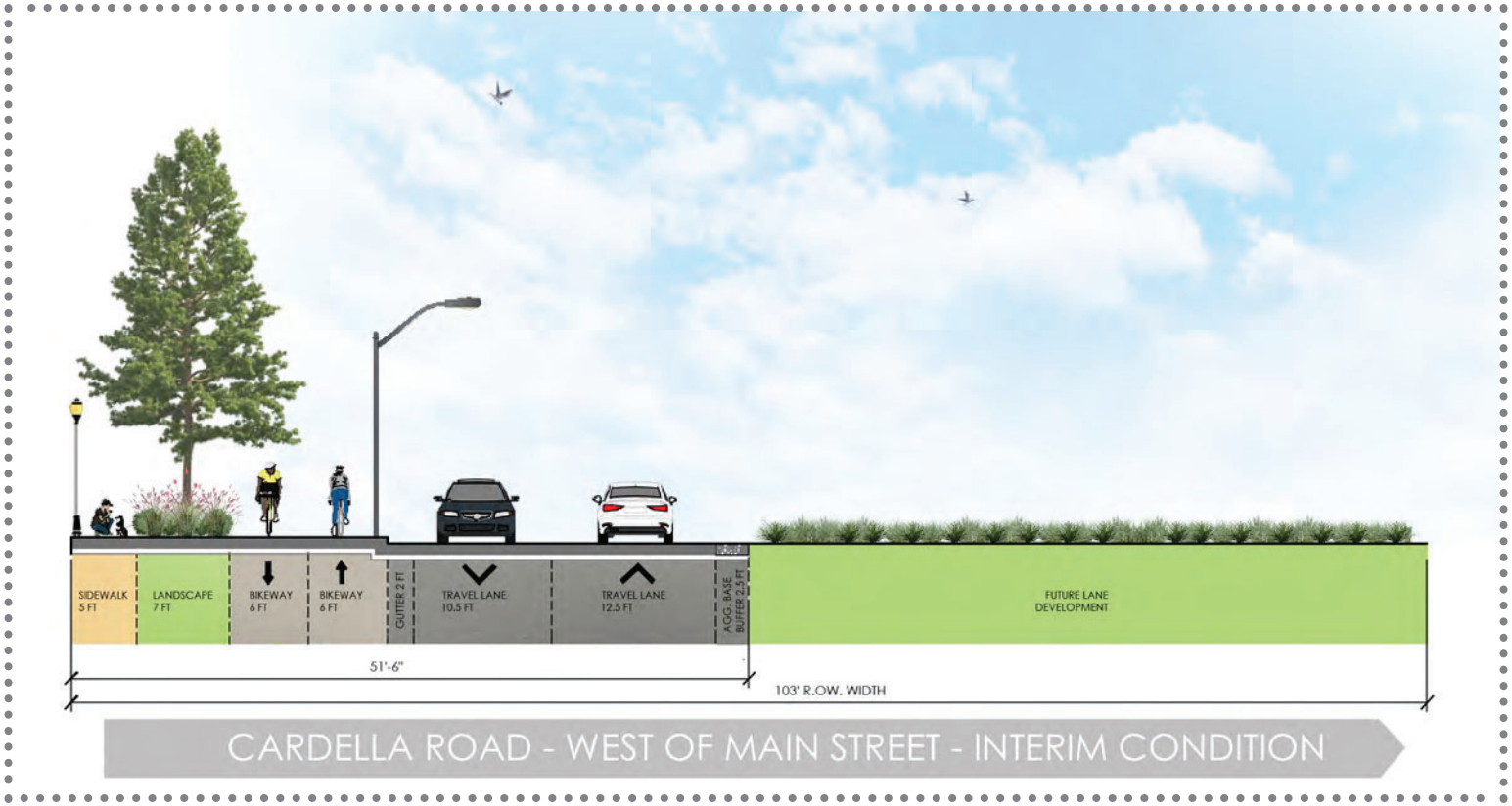
rrm design group

Cardella Road - West of Main Street Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

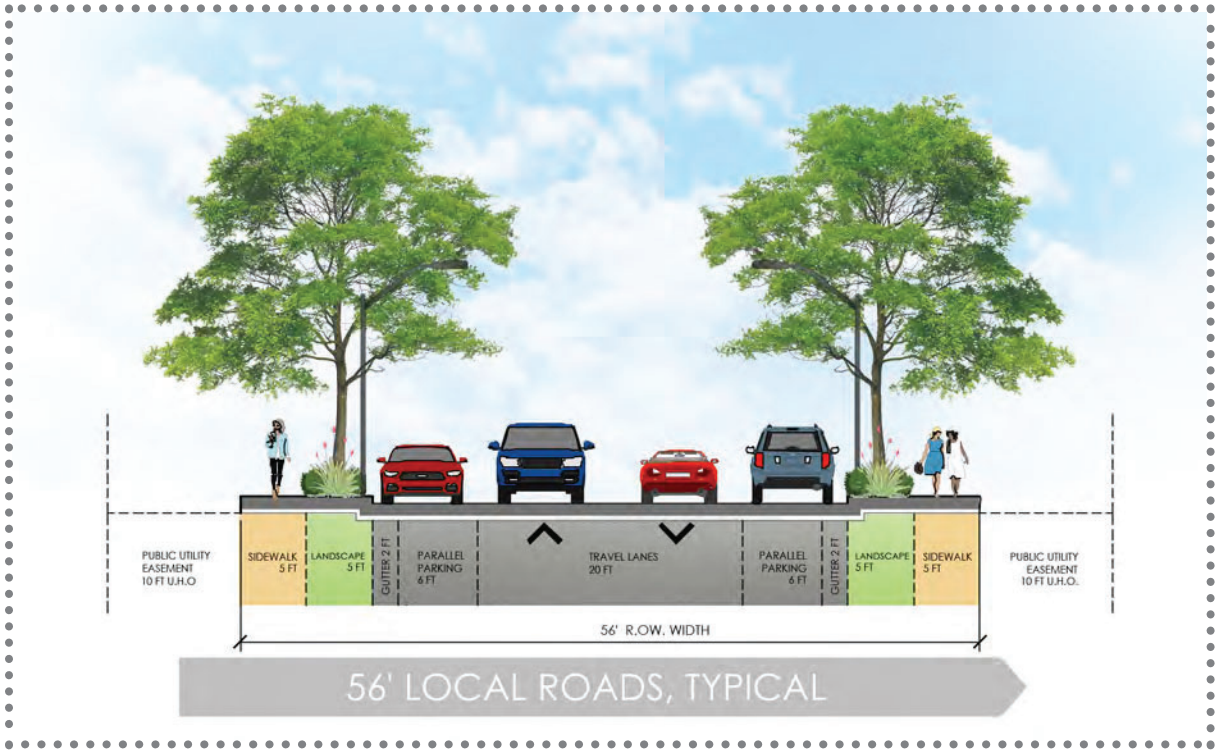
· *Ulmus parvifolia 'Frontier'* / **Frontier Elm**

Cardella Road - West of Main Street - Interim Condition Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

- *Malus spp.* / **Flowering crabapple**

Parkway Trees:

- *Platanus acerifolia*/ **London plane tree**

56' Local Roads, Typical Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

STREET TREE LEGEND

Median Trees:

- *Malus spp.* / **Flowering crabapple**

Parkway Trees:

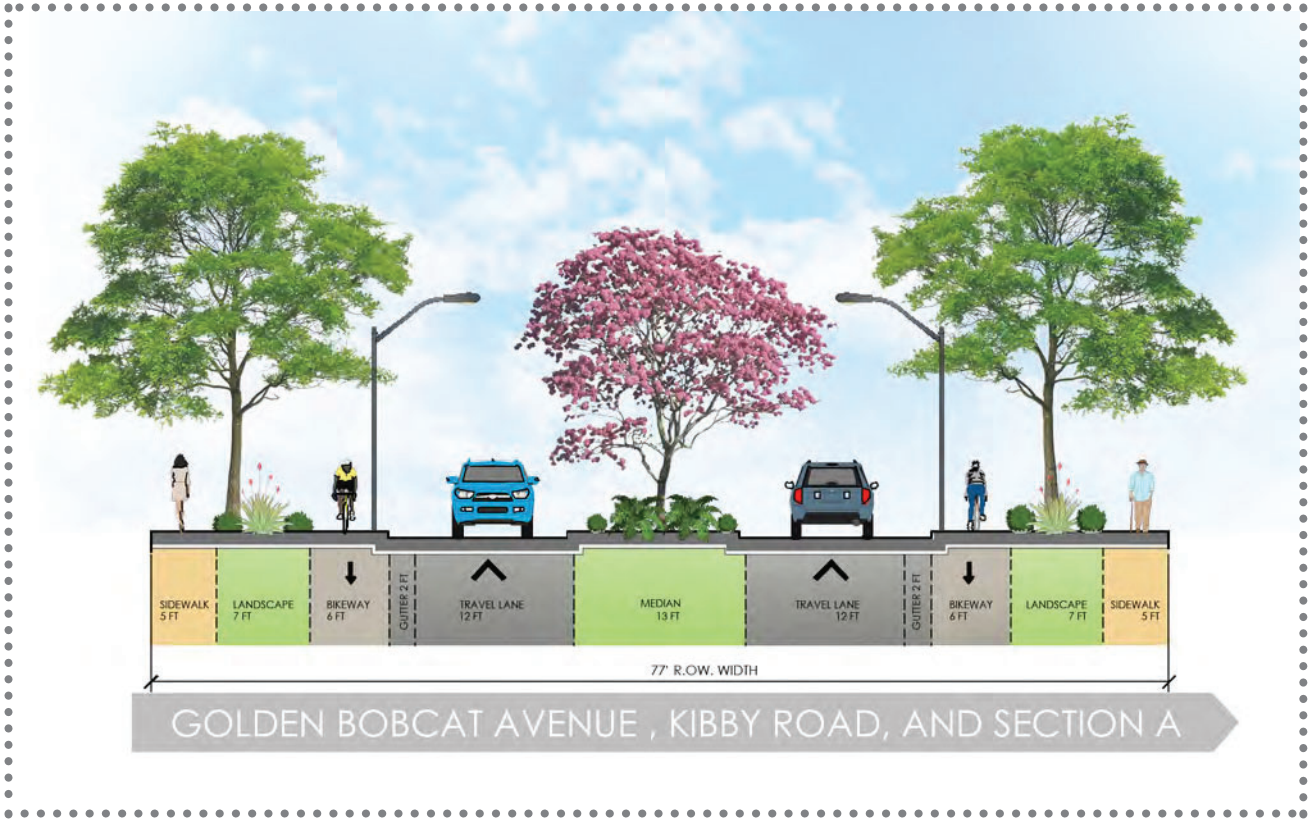
- *Platanus acerifolia*/ **London plane tree**

60' Local Roads, Typical Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020



STREET TREE LEGEND

Median Trees:

- *Malus spp.* / **Flowering crabapple**

Parkway Trees:

- *Platanus acerifolia*/ **London plane tree**

Golden Bobcat Avenue, Kibby Road, and Section A Section and Plan

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

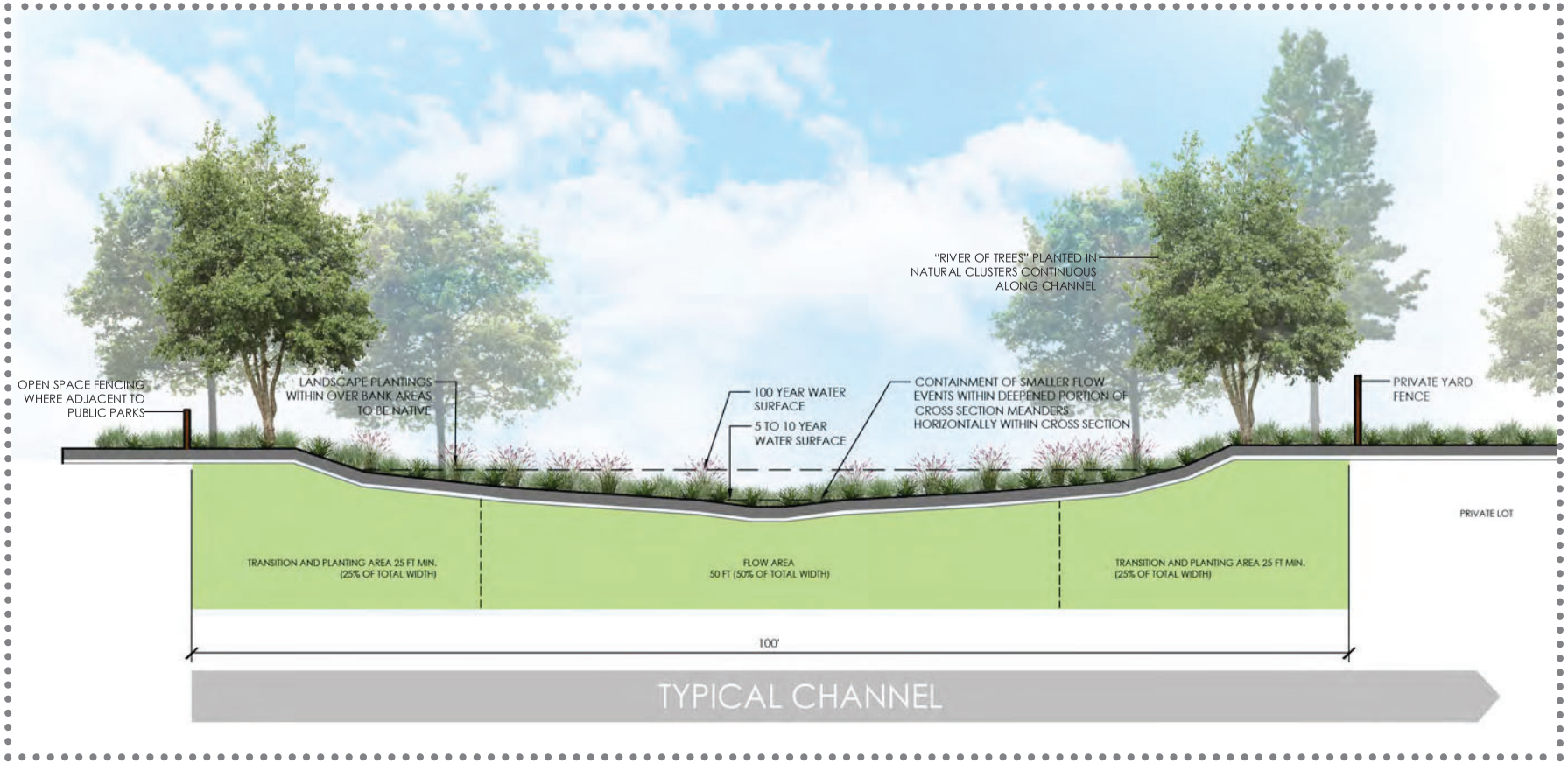
Virginia Smith Trust
Park Amenities Matrix

	PARK DESCRIPTION AND USERS					REQUIRED FEATURES AND ACTIVITIES																															
DEVELOPMENT PHASE	PARKS	ACRES*	PARK TYPE**	NEIGHBORHOOD USERS	MAIN FEATURES	LOUNGE SEATING	PICNIC OR DINING	BBQ/OUTDOOR KITCHEN	POOL & CLUBHOUSE	HYDRATION STATION	COMMUNITY GARDENS	PARKING LOT	RESTROOMS	GAMES (ping pong, bocce...)	YOGA / REGENERATIVE FITNESS PAD	CONNECTIVITY TO BIKE/PED PATH	FITNESS OR PARCOURS (3+)	FITNESS HUB (2-3)	FITNESS STATION	DOG PARK	MULTI-USE LAWN	NATURAL PLAY	PLAYGROUND (2-5 & 5-12)	UNIQUE PLAY	SPLASH PAD	BASEBALL	BASKETBALL	VOLLEYBALL	TENNIS	SOCCER	PICKLEBALL	VISIBLE FRONTAGE	AMPITHEATER	PUBLIC ART	OUTDOOR CLASSROOM	GARDEN / SPECALITY PLANTING	NATURAL LANDSCAPE
PHASE 1																																					
1 A	A.1	0.13	Mini Park	Multi-Unit/ Student	- Visible Frontage - Passive Activities		X																									X		X			
	A.2	0.10	Mini Park	Multi-Unit/ Student	- Fitness - Outdoor Lounge	X				X							X																				
	A.3	0.17	Mini Park	Multi-Unit/ Student	- Community Gathering - Game Area	X	X							X																							
	A.4	0.24	Mini Park	Multi-Unit/ Student	- Fitness/Regenerative - Outdoor Lounge	X				X					X						X															X	
	A.5	0.52	Mini Park	Single-Detached/ Families & Students	- Fitness - Sports		X			X							X										X	X									
	A.6	0.70	Mini Park	Single-Detached/ Families & Students	- Community Gathering - Arts - Play	X	X							X										X									X	X			
	A.7	0.61	Mini Park	Single-Detached/ Families & Students	- Active - Sports - Play		X										X					X					X				X						
	A.8	0.41	Mini Park	Single-Detached/ Families & Students	- Visible Frontage - Dog Park - Play	X										X				X				X								X					
1 B	B.1	0.83	Mini Park	Single-Detached/ All Users	- Channel View - Community Gathering - Play	X	X														X	X	X														X
	B.2	0.63	Mini Park	Single-Detached/ All Users	- Channel View - Active - Sports		X			X								X			X						X				X						
	B.3	0.40	Mini Park	Single-Detached/ All Users	- Visible Frontage - Community Gathering - Passive	X																										X				X	
	B.4	0.69	Mini Park	Single-Detached/ All Users	- Visible Frontage - Play - Sports		X											X					X				X				X	X					
	B.5	0.40	Linear Park	Single-Detached/ All Users	- Visible Frontage - Bioretention - Multi-generation Fitness Course					X						X			X													X					X
	B.6	0.57	Mini Park	Single-Detached/ All Users	- Visible Frontage - Community Gathering - Passive	X															X															X	
1 C	C1	0.44	Mini Park	Multi-Unit/ Student	- Active - Sports - Play		X			X											X		X				X	X			X						
	C.2	0.42	Mini Park	Multi-Unit/ Student	- Community Gathering - Parcourse Series - Outdoor Lounge/ BBQ	X		X		X									X		X																
	C.3	0.27	Mini Park	Multi-Unit/ Student	- Community Gathering - Game Area	X	X							X																							
	C.4	0.21	Mini Park	Single-Detached/ Families & Students	- Active - Sports - Play		X			X								X					X				X				X						
	C.5	0.12	Mini Park	Single-Detached/ All Users	- Community Gathering - Play	X	X	X															X														
	C.6	0.08	Mini Park	Single-Detached/ All Users	- Lounge - Play - Lawn Area	X															X				X											X	
	C.7	0.09	Mini Park	Single-Detached/ All Users	- Community Gathering - Play - Community Gardens	X	X				X												X														
1 D	D.1	6.17	Community Park	Single-Detached/ All Users	- Clubhouse & Pool - Splashpad Play - Fitness		X		X	X		X		X	X	X					X		X	X			X		X		X	X					
	D.2	0.26	Mini Park	Single-Detached/ All Users	- Lounge - Lawn Area - Specialty Garden	X															X															X	
	D.3	0.61	Mini Park	Single-Detached/ All Users	- Visible Frontage - Community Gathering - Play		X																	X								X					
	D.4	0.43	Mini Park	Single-Detached/ All Users	- Active - Sports - Play		X											X			X		X								X						
1 E	E.1	1.91	Neighborhood Park	Single-Detached/ Families	- Dog Park - Outdoor Classroom - Play		X			X						X				X	X		X									X			X		
	E.2	1.25	Linear Park	Single-Detached/ Families	- Visible Frontage - Public Art																											X		X			X
	E.3	7.72	Community Park	Single-Detached/ Families	- Community Gathering - Fitness - Community Gardens	X	X	X		X				X		X	X				X		X									X	X	X			

*Usable Park Space
**Park Types:
Mini Parks (2,500 SF to 1.5 acre)
Neighborhood Park (1.6 - 5 acres)
Community Park (over 5 acres)
Linear Park (no standard size)

	PARK DESCRIPTION AND USERS					REQUIRED FEATURES AND ACTIVITIES																															
DEVELOPMENT PHASE	PARKS	ACRES*	PARK TYPE**	NEIGHBORHOOD USERS	MAIN FEATURES	LOUNGE SEATING	PICNIC OR DINING	BBQ/OUTDOOR KITCHEN	POOL & CLUBHOUSE	HYDRATION STATION	COMMUNITY GARDENS	PARKING LOT	RESTROOMS	GAMES (ping pong, bocce...)	YOGA / REGENERATIVE FITNESS PAD	CONNECTIVITY TO BIKE/PED PATH	FITNESS OR PARCOURS (3+)	FITNESS HUB (2-3)	FITNESS STATION	DOG PARK	MULTI-USE LAWN	NATURAL PLAY	PLAYGROUND (2-5 & 5-12)	UNIQUE PLAY	SPLASH PAD	BASEBALL	BASKETBALL	VOLLEYBALL	TENNIS	SOCCER	PICKLEBALL	VISIBLE FRONTAGE	AMPITHEATER	PUBLIC ART	OUTDOOR CLASSROOM	GARDEN / SPECALITY PLANTING	NATURAL LANDSCAPE
PHASE 2																																					
2 A	A.1	0.83	Mini Park	Single-Detached/ All Users	- Fitness - Play - Sports		●											●			●		●				●				●						
	A.2	36.05	Community Park	Single-Detached/ All Users	- Visible Frontage - Sports - Parking - Picnic		●			●						●					●		●			●		●	●	●		●			●	●	
2 B	B.1	0.88	Mini Park	Single-Detached/ All Users	- Picnic - Play - Sports		●											●			●		●				●				●						
	B.2	0.33	Mini Park	Single-Detached/ All Users	- Lounge - Lawn Area - Specialty Garden	●															●															●	
2 C	C.1	0.62	Mini Park	Single-Detached/ All Users	- Lounge - Dog Park - Games	●				●				●						●																	
	C.2	0.32	Mini Park	Single-Detached/ All Users	- Lounge - Lawn Area - Specialty Garden	●															●															●	
	C.3	6.42	Community Park	Single-Detached/ All Users	- Community Gathering - Fitness - Sports - Play		●	●		●		●				●	●						●		●		●		●		●	●					
	C.4	0.78	Mini Park	Single-Detached/ All Users	- Community Gathering - Games - Play	●	●							●							●			●								●					
	C.5	0.37	Mini Park	Single-Detached/ All Users	- Lounge - Fitness - Lawn Area	●											●				●																
	C.6	0.69	Mini Park	Single-Detached/ All Users	- Community Gathering - Fitness/Regenerative - Lawn Area	●									●						●											●		●			
2 D	D.1	0.24	Mini Park	Single-Detached/ All Users	- Trail Connection - Fitness - Lawn Area	●	●			●						●		●																			
	D.2	0.5	Mini Park	Single-Detached/ All Users	- Community Gathering - Games - Play - Sports	●	●	●						●							●																
	D.3	0.52	Mini Park	Single-Detached/ All Users	- Lounge - Play - Sports	●				●											●		●	●			●										
	D.4	0.13	Mini Park	Single-Detached/ All Users	- Community Gardens - Picnic		●				●																										
	D.5	0.14	Mini Park	Single-Detached/ All Users	- Community Gathering - Fitness/Regenerative - Play	●	●								●								●	●												●	
	D.6	0.13	Mini Park	Single-Detached/ All Users	- Lounge - Play - Sports	●																	●				●										
	D.7	0.49	Mini Park	Single-Detached/ All Users	- Community Gathering - Games - Sports	●	●			●				●							●										●						
	D.8	1.29	Mini Park	Single-Detached/ All Users	- Lounge - Visible Frontage - Lawn Area	●				●						●					●											●		●		●	●

*Usable Park Space
**Park Types:
Mini Parks (2,500 SF to 1.5 acre)
Neighborhood Park (1.6 - 5 acres)
Community Park (over 5 acres)
Linear Park (no standard size)



STREET TREE LEGEND

Riparian Trees:

- *Alnus rhombifolia* / **White Alder**
- *Quercus lobata* / **Valley Oak**
- *Populus fremontii* / **Fremont Cottonwood**
- *Aesculus californica* / **California Buckeye**

"River of Trees" Typical Channel - Section

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS

DECEMBER 2020

DESIGN KEY

1. Shade structure
2. Specimen tree and seat wall
3. D.G. pathway
4. Zipline
5. Picnic area
6. Climbing rock
7. Split rail fence
8. Pavers
9. Bioretention
10. Lawn
11. Play structure (5-12 y.o.)
12. Cottonwood creek

Size: *2.24 Acres*
Lawn: *14,623 sq.ft.*

0' 20' 40' 80' 120'

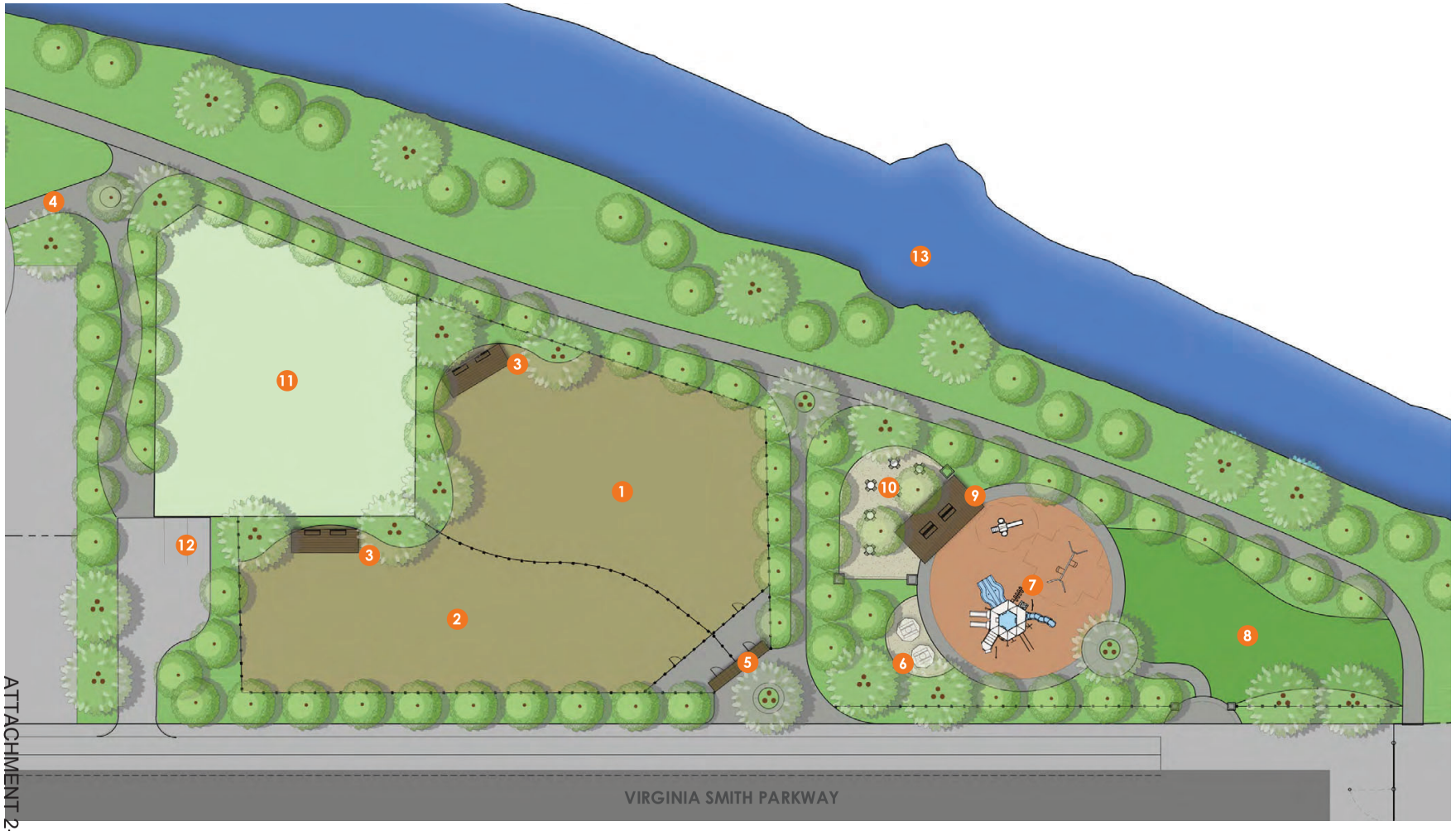
SCALE 1" = 40'
DECEMBER 2020

PRELIMINARY PARK CONCEPTS - Channel Park (Phase 1)

Virginia Smith Trust Land Plan and Vesting Tentative Map

DESIGN KEY

1. Big dog park
2. Small dog park
3. Shade structure
4. Neighborhood connection
5. Dog park entry
6. Picnic area
7. Play area (2-5 & 5-12 y.o.)
8. Lawn
9. Multi-use shade structure
10. Outdoor classroom / Picnic area
11. Well area (approx. 10,000 sq.ft.)
12. Maintenance parking
13. Fairfield canal



Size: *2.97 Acres*
Lawn: *4,400 sq.ft.*

PRELIMINARY PARK CONCEPTS - Dog Park (Phase 1)

Virginia Smith Trust Land Plan and Vesting Tentative Map

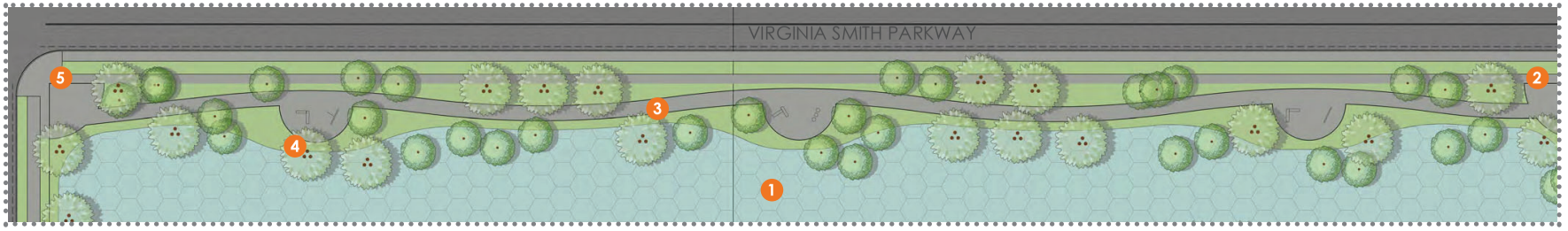
0' 20' 40' 80' 120'

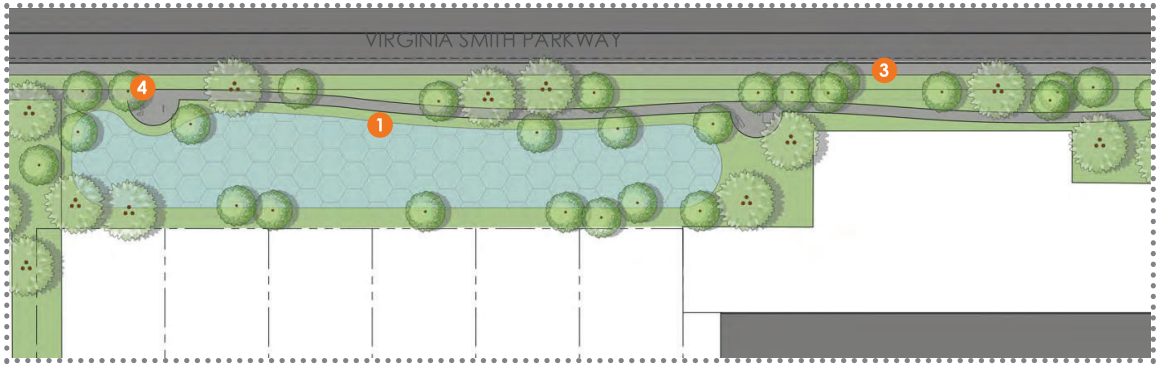
rrm design group

SCALE 1" = 40'
DECEMBER 2020

DESIGN KEY

1. *Naturalized bioretention channel*
2. *Pedestrian connection to community clubhouse*
3. *Accessible walkway*
4. *Fitness & play nodes*
5. *Dog waste stations*





Size: 2.22 Acres
Fitness Stations: 10

0' 30' 60' 120' 180'

SCALE 1" = 60'
DECEMBER 2020

PRELIMINARY PARK CONCEPTS - Linear Park (Phase 1)

Virginia Smith Trust Land Plan and Vesting Tentative Map

DESIGN KEY

1. Community clubhouse
2. Community barn structure
3. Play area
4. Splashpad
5. Firepit with seating
6. Restroom & showers
7. Parking
8. Outdoor game area
9. Swimming pool
10. Tables and umbrellas
11. Basketball courts
12. Tennis courts
13. Pickleball courts
14. Wading pool
15. Fitness Lawn
16. Regenerative fitness deck
17. D.G. courtyard / Barn event overflow
18. Tree seat wall
19. Pool cabanas
20. Barn entry / Event overflow

Size: *6.13 Acres*
Parking: *103 (5 ADA)*
Lawn: *32,092 sq. ft.*
Building: *12,023sq. ft.*

0' 30' 60' 120' 180'

SCALE 1" = 60'
DECEMBER 2020

PRELIMINARY PARK CONCEPTS - Community Club Park (Phase 1)

Virginia Smith Trust Land Plan and Vesting Tentative Map

Size: *2.57 Acres*
Parking: *178 (6 ADA)*
Lawn: *92,161 sq.ft.*

DESIGN KEY

1. *Parking lot*
2. *Soccer fields*
3. *Fitness lawn*
4. *Adult baseball/softball field*
5. *Sand volleyball*
6. *Community building*
7. *Amphitheatre*
8. *Youth baseball fields*
9. *Picnic tables*
10. *Tennis courts*
11. *Par course fitness*
12. *Play area*
13. *Community garden & orchard*
14. *Community gathering*
15. *M.I.D. canal*

0' 100' 200' 400' 600'

SCALE 1" = 200'
DECEMBER 2020

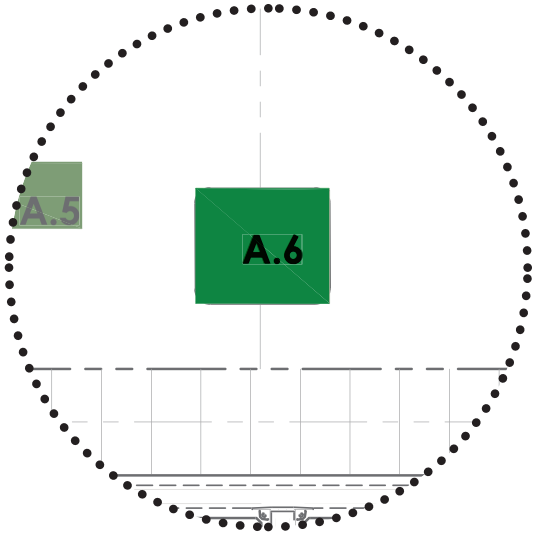
PRELIMINARY PARK CONCEPTS - Community Sports Park (Phase 1 & 2)

Virginia Smith Trust Land Plan and Vesting Tentative Map

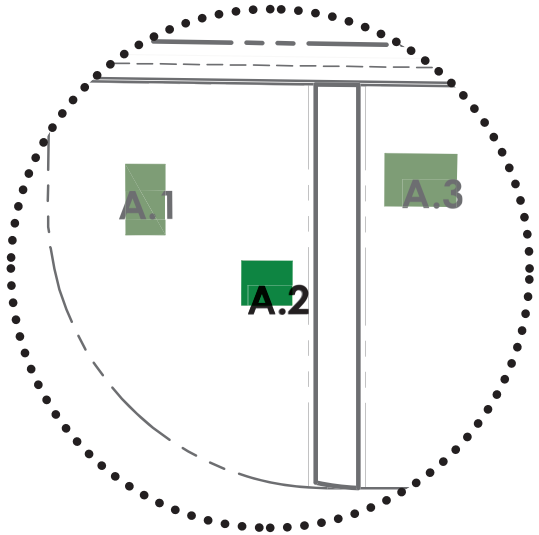
MINI PARKS

There are 46 proposed parks in the Virginia Smith Trust community and four park types: Mini Park, Linear Park, Neighborhood Park, and Community Park. With 39 Mini Parks proposed, this is by far the most commonly occurring park type at Virginia Smith Tract. The National Recreation and Park Association (NRPA) recommends that Mini Parks be between 2,500 square feet and two acres in size and they are intended to address the unique recreational needs of concentrated populations that surround them. The 29 Mini Parks at VST range in size from 3,400 square feet to 1.3 acres and vary greatly in terms of their shapes and physical context within the community.

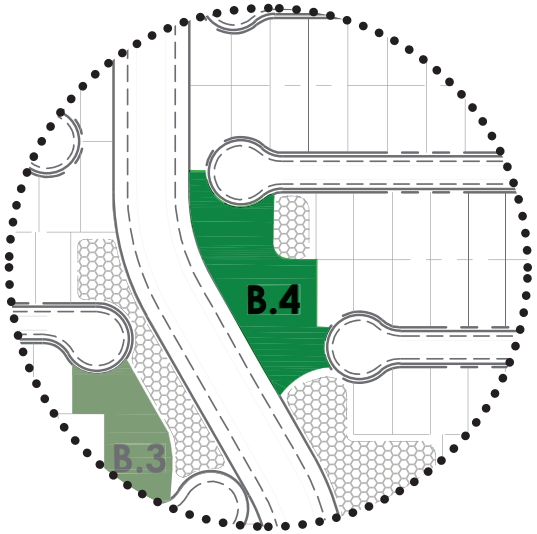
The goal of this Mini Park Typical design resource is to provide standardized guidance to assist developers, designers, and reviewers in the process of planning for and implementing the VST Mini Parks. This resource should be used in conjunction with the VST Parks Matrix document, which provides a summary of the specific park amenities and features recommended for each individual park. The following pages provide recommended breakdowns for park improvements and alternative programming types with associated sample designs.



MEDIUM MINI PARKS
Acres: 0.6 -1.2 acres
Tree Count: 10 trees per 100 sq. ft.
Medium Mini Parks with their larger size and square or rectangular shapes, can accommodate a larger number and greater size of park amenities. Still focused on meeting the needs of the immediate surrounding neighborhood, they may be able to include multiple activities, such as community gathering and family play.



POCKET PARKS
Size: 2,500 sq. ft. to .5 acre
Tree Count: 10 trees per 100 sq. ft.
The smallest of the VST Mini Parks, there are approximately 23 Pocket Parks distributed across the community. Due to their limited size, Pocket Parks provide a more specialized offering of amenities, chosen to meet the needs of the immediate neighborhoods where they are located.



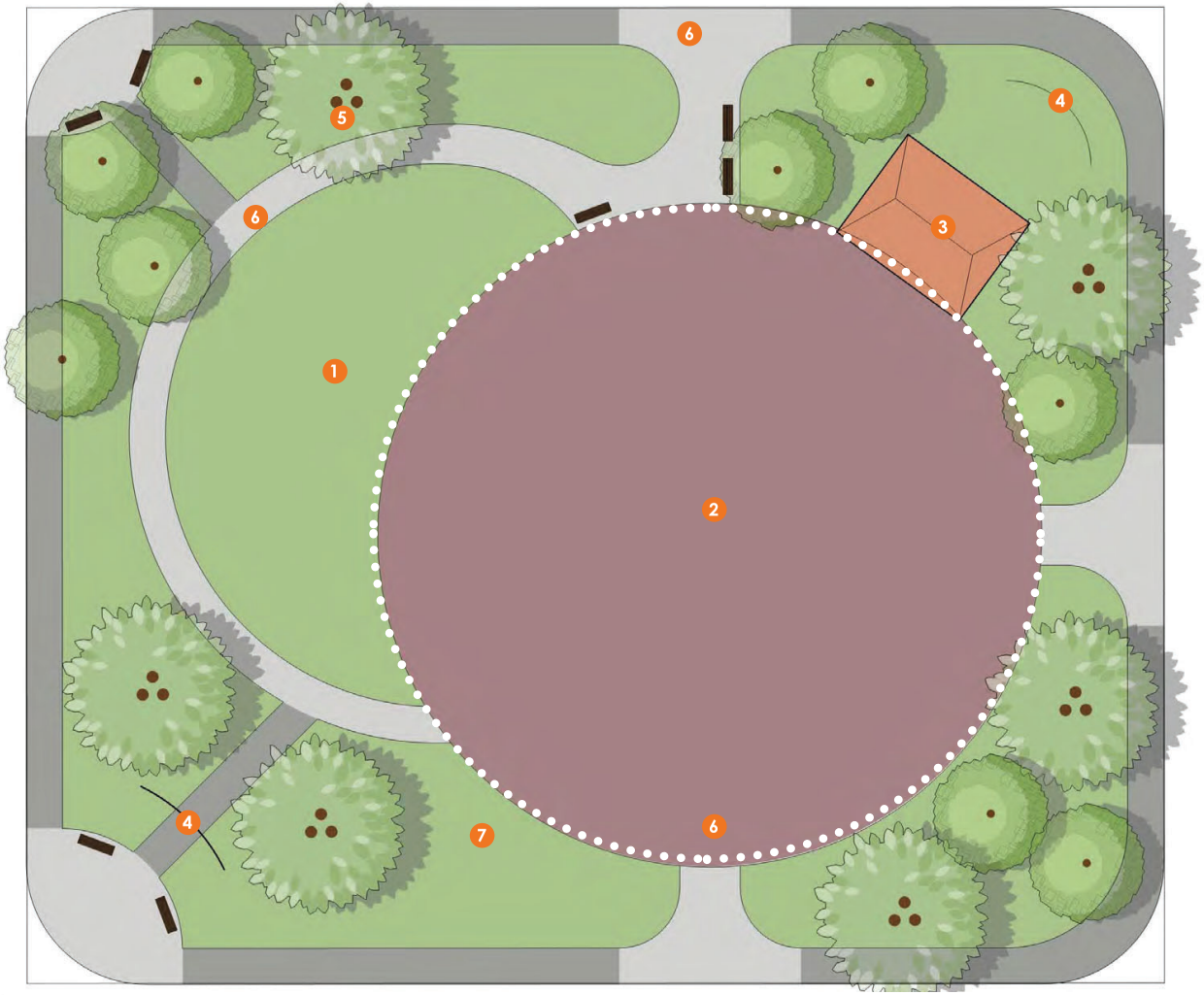
CUSTOM PARKS
Acres: 0.2 -1.3 acres
Tree Count: 10 trees per 100 sq. ft.
There are a handful of irregularly shaped parks proposed across the community. The corners and roadway frontages associated with these parks impact the space available for park programming. In some cases that will drive the programming toward more passive uses. Although the odd shaped corners may result in reduced efficiency for active park elements, they will provide enhanced green space for adjacent neighborhoods.

MINI PARK- DESIGNS
Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS
DECEMBER 2020

MINI PARK PROGRAMMING AND IMPROVEMENTS

Each Mini Mark will meet certain standards for improvements based on the guidelines provided below. The square footage and associated percent cover shown are recommendations intended to ensure the parks are developed to be attractive, functional, and with sufficient amenities and resources to support the adjacent neighborhood.

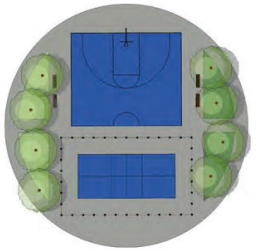


DESIGN KEY

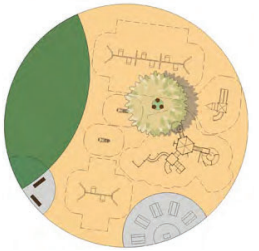
1. *Lawn Area*
2. *Activity Area*
3. *Shade structure*
4. *Entry signage*
5. *Shade trees*
6. *Hardscape*
7. *Planting Area*
8. *Optional playground*

PARK ELEMENTS LEGEND & PERCENTAGE COVER

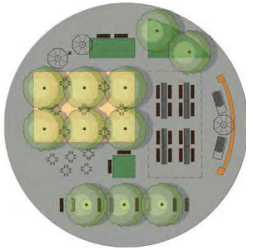
- *Lawn area 0-15%*
- *Shade structure 20 - 35%*
- *Hardscape 10 - 25%*
- *Planting area 25 - 40%*
- *Activity area 10 - 25%*



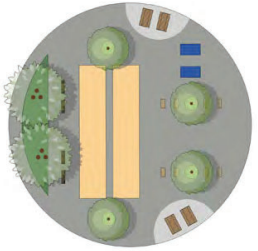
ALT. A - ACTIVE RECREATION



ALT. C - FAMILY PLAY AREA



ALT. B - COMMUNITY GATHERING



ALT. D- OUTDOOR GAMES

PRELIMINARY PARK CONCEPTS - Mini Park, typical - (Phase 1)

Virginia Smith Trust Land Plan and Vesting Tentative Map

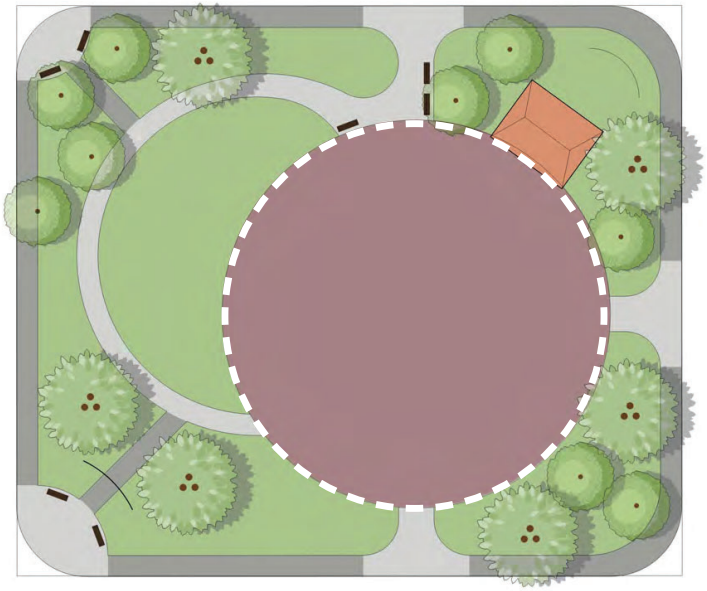
NTS

DECEMBER 2020

DESIGN KEY

1. Lawn
2. Fruit Tree Bosque
3. Shade structure
4. Swings
5. Shade trees
6. Basketball Court
7. Picnic Tables
8. Shade trees
9. Basketball Court
10. Picnic Tables
11. BBQ, Wall, and Counter
12. Bag Toss
13. Bocce Ball Court
14. Community Garden Beds

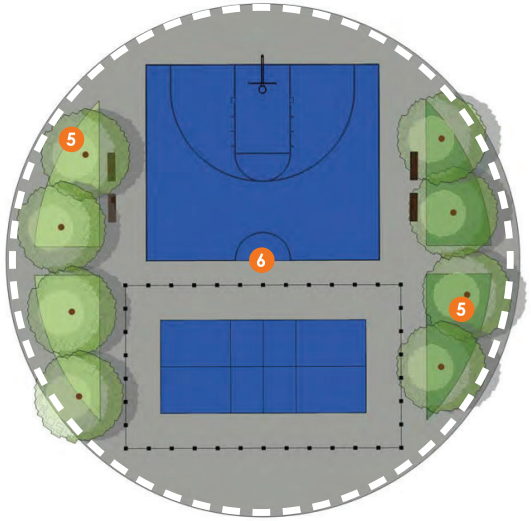
MINI PARK, TYPICAL



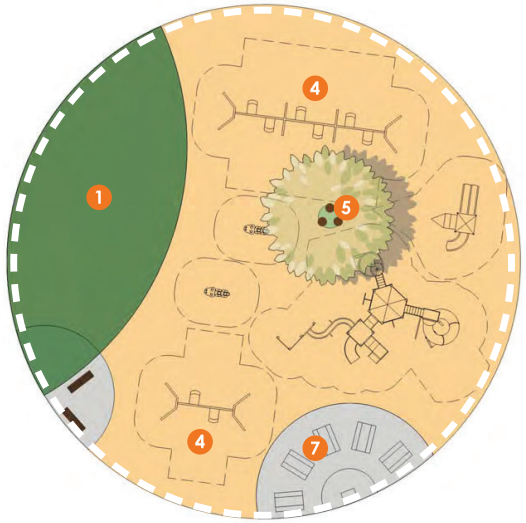
ACTIVITY AREA NARRATIVE

The activities programmed for the different mini parks will respond to their neighborhood and something about the matrix . there are four activity types

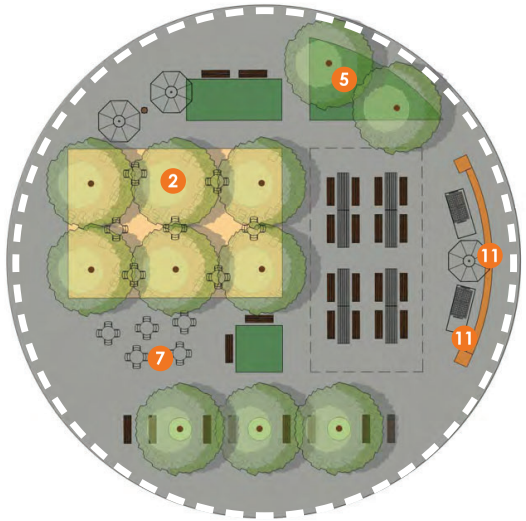
ALT. A - ACTIVE RECREATION



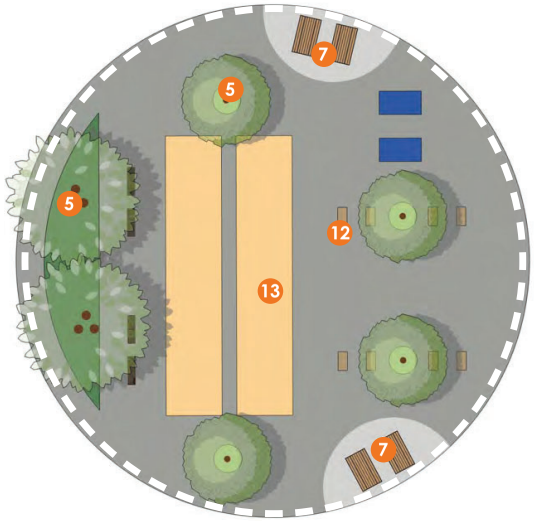
ALT. C - FAMILY PLAY AREA



ALT. B - COMMUNITY GATHERING



ALT. D- ADULT PLAY AREA



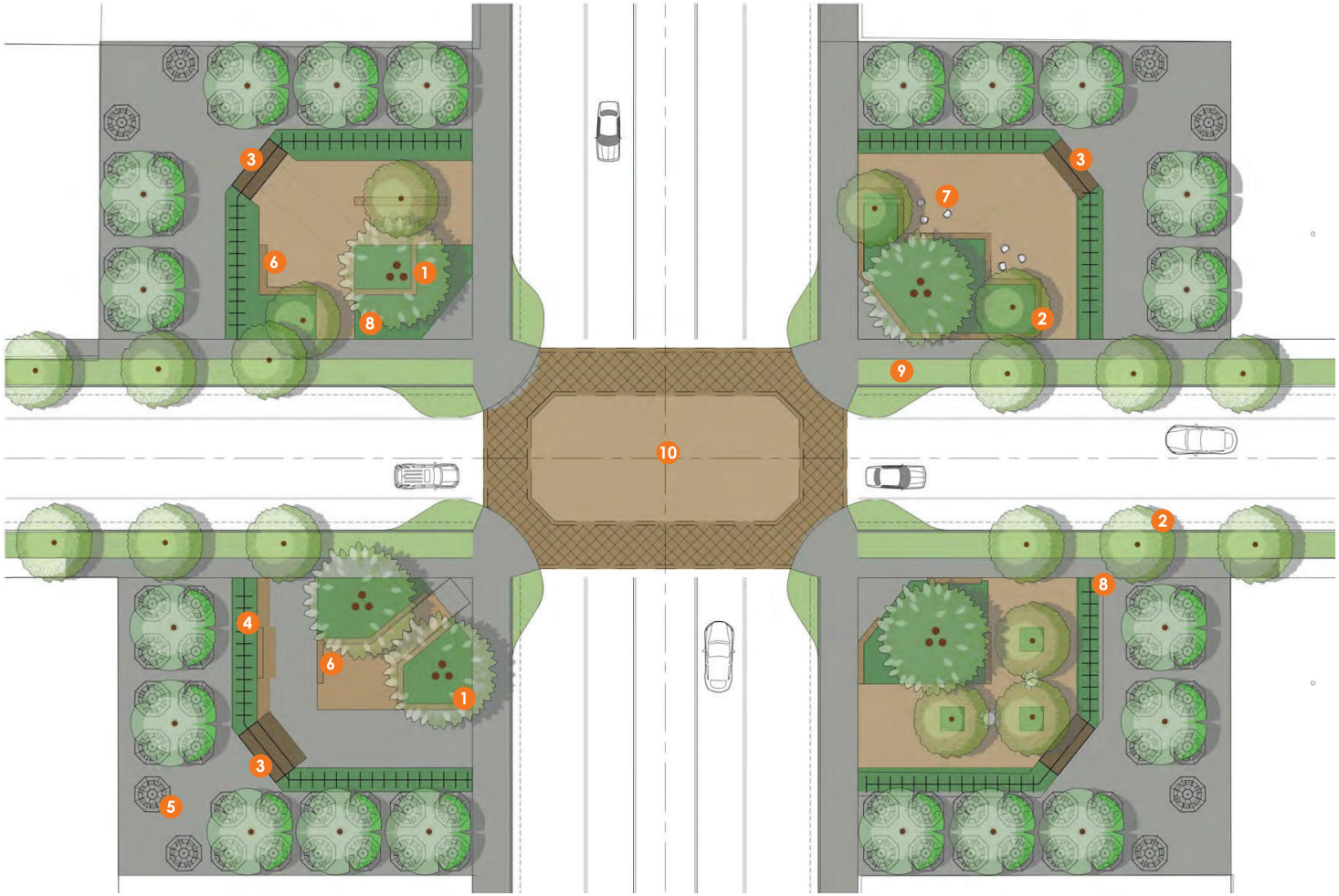
PRELIMINARY PARK CONCEPTS - Mini Park, typical - (Phase 1)

Virginia Smith Trust Land Plan and Vesting Tentative Map

NTS
DECEMBER 2020

DESIGN KEY

1. Specimen trees
2. Small accent trees
3. Entry Arch
4. Trellis with seat wall
5. Patio tables & chairs
6. Seat wall
7. Lounge chairs
8. Planter
9. Parkway
10. Enhanced paving at intersectio and crosswalk



PRELIMINARY PARK CONCEPTS - Town Center Plaza

Virginia Smith Trust Land Plan and Vesting Tentative Map

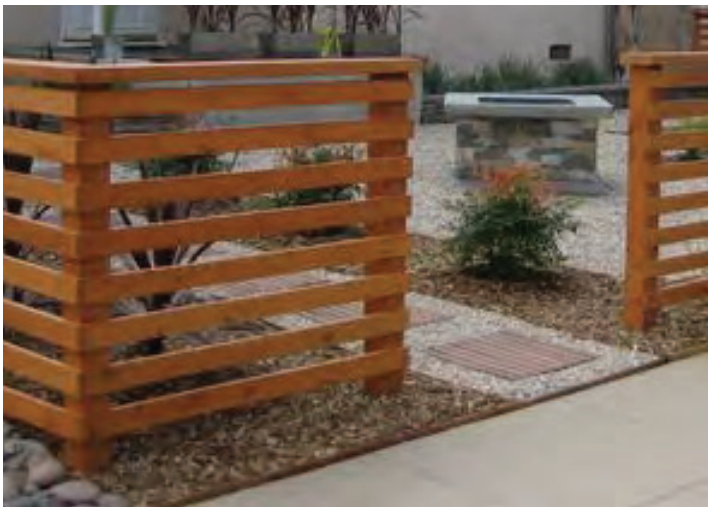
0' 15' 30' 60' 90'

rrm design group

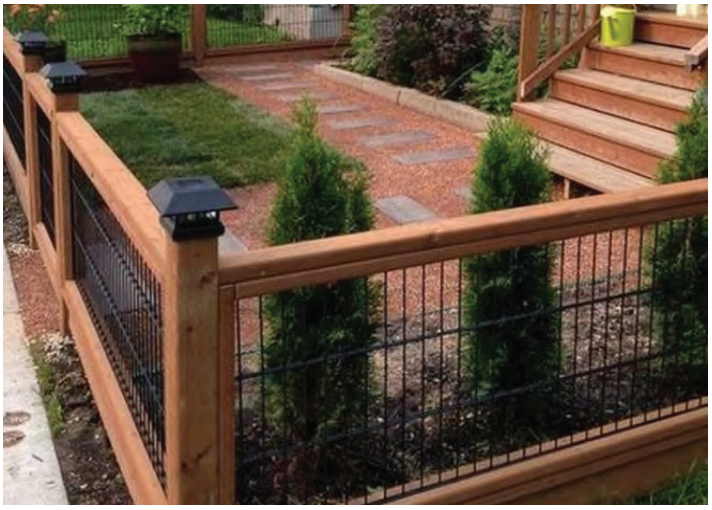
SCALE 1" = 30'

DECEMBER 2020

FRONT YARD - Horizontal

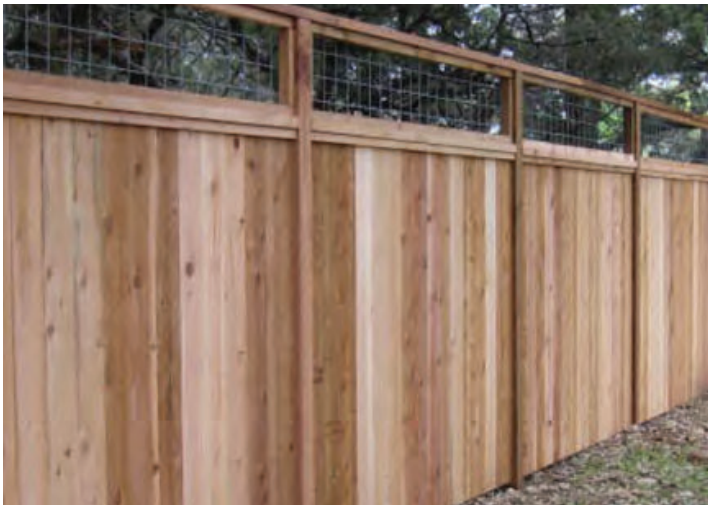


FRONT YARD - Horizonatal Open



FRONT YARD - Open Hog Wire

FRONT YARD: Vertical



PRIVACY - Vertical with Hogwire Insert

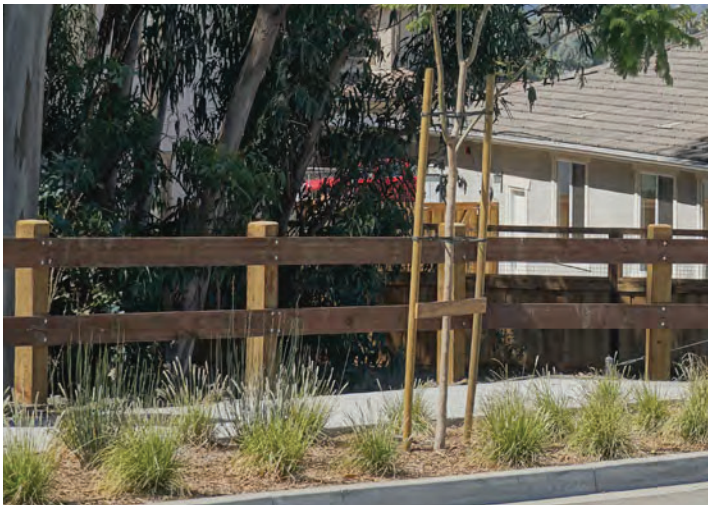
PRIVACY: Horizontal

OPEN SPACE: Wood Frame Hog Wire

OPEN SPACE: Metal Rail Horse Panel

OPEN SPACE: Wood Frame Hog Wire

OPEN SPACE: Split Rail



OPEN SPACE: Split Rail

OPEN SPACE: Metal

Class I Miles: 2
Class II Miles: 2.3

CLASS I BIKEWAY

DESIGN GUIDELINES:

- Two-way path
- 10' minimum width
- 12' preferred width
- 2-foot shoulders
- Optional walking/ running trail
- Directional markings
- Trail signage

CLASS II BIKEWAY

DESIGN GUIDELINES:

- One-way
- At street level
- 5' minimum width
- Class II markings
- Roadway signage

Class III Miles: .8
Class IV Miles One Way: 4
Class IV Miles Two Way: 4.6

CLASS III BIKEWAY

DESIGN GUIDELINES:

- One-way
- At street level
- Shared with vehicles
- Sharrow marking
- Roadway signage

CLASS IV BIKEWAY

DESIGN GUIDELINES:

- One-way or two-way
- Separated from street
- 6' minimum width one-way
- 12' minimum width two-way
- Directional markings
- Roadway signage

CAMPUS PARKWAY

Ginkgo biloba 'Autumn Gold'
Maidenhair Tree

Pistacia chinensis 'Keith Davey'
Chinese Pistache

Platanus racemosa
California Sycamore

Prunus x yedoensis
Flowering Cherry

Zelkova serrata 'Village Green'
Village Green Zelkova

VIRGINIA SMITH PARKWAY

Cedrus deodara
Deodar cedar

Pistacia chinensis 'Keith Davey'
Chinese Pistache

Platanus racemosa
California Sycamore

Quercus coccinea
Scarlet Oak

COLLECTOR STREETS

Acer rubrum x freemanii
Autumn Blaze Red Maple

Cedrus deodora
Deodar Cedar

Platanus acerifolia
London Plane Tree

Quercus macrocarpa x robur
Heritage Oak

NEIGHBORHOOD STREETS

SAMPLE SUBDIVISION PALETTE

Acer rubrum 'October Glory'
October Glory Red Maple

Cinnamomum camphora
Camphor Tree

Pistacia chinensis 'Keith Davey'
Chinese Pistache

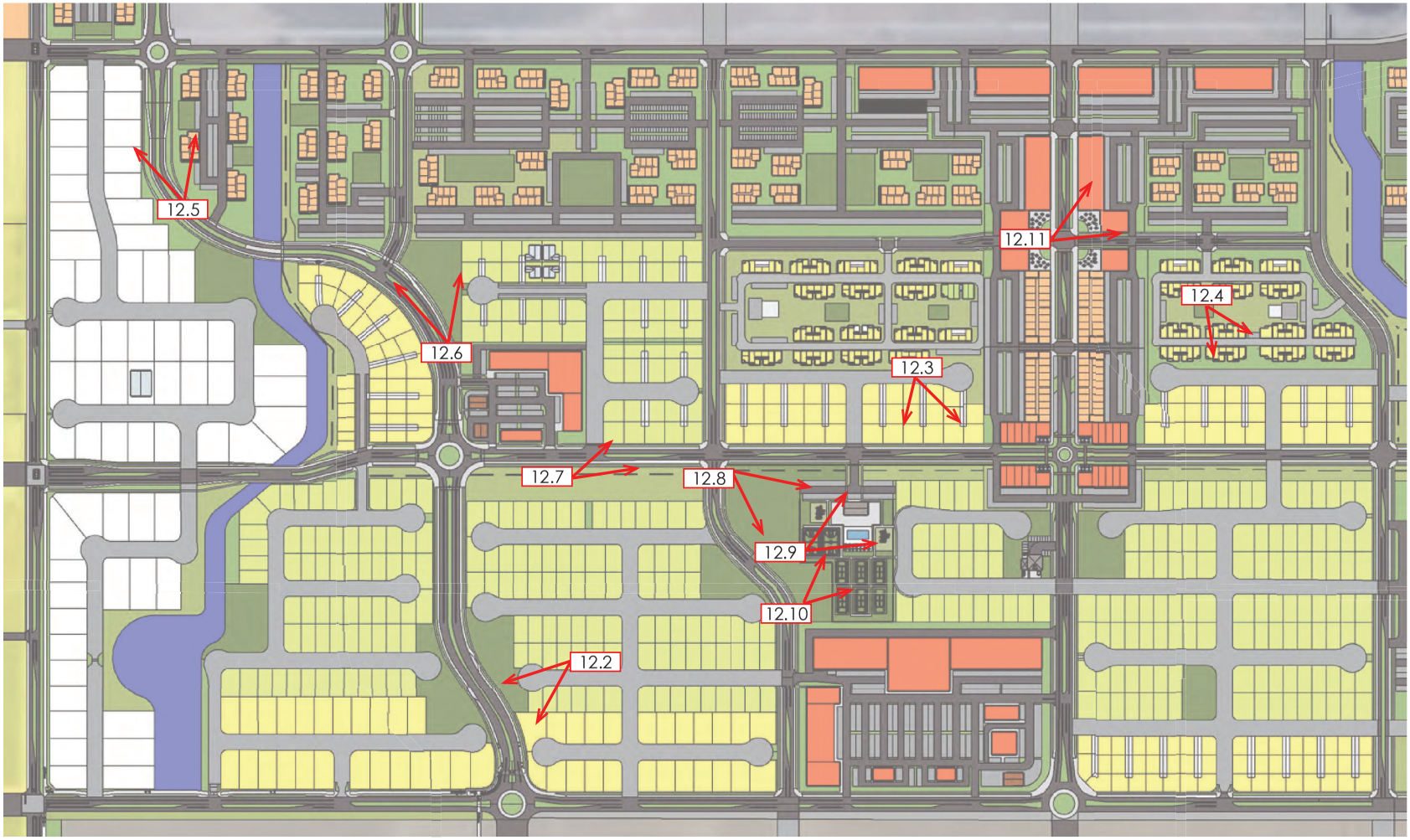
SAMPLE SUBDIVISION PALETTE

Cercis canadensis ' Forest Pansy'
Eastern Redbud

Koelreuteria bipinnata
Chinese Flame Tree

Pinus afghan
Afghan Pine

Zelkova serrata 'Halka'
Halka Zelkova



VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.1 VIGNETTE KEY PLAN

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.2 R-1 NEIGHBORHOOD

ATTACHMENT 2--Page 107

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.3A R-2/R-1.5 CLUSTER

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.3B R-2/R-1.5 CLUSTER

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.4 R-3 MULTI-FAMILY

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.5 R-4/CAMPUS PARKWAY

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.6 POCKET PARK/CAMPUS PARKWAY

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.7 LINEAR PARK/VIRGINIA SMITH PARKWAY

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURES 12.8 - BARN FARMERS MARKET/CLUBHOUSE

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.9 FIRE PIT, POOL, GAMES AREA/CLUBHOUSE

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.10 FITNESS AREA/CLUBHOUSE

VIRGINIA SMITH TRUST

rrm design group

VIRGINIA SMITH TRUST SPECIFIC PLAN

FIGURE 12.11 COMMERCIAL - TOWN CENTER

Attachment 6

Estimated Number of Jobs

Estimated Number of Jobs

Land Use	Units	Quantity	Units/Employee	Total Employees
Retail Mixed Use	SF	307,500	400	769
Office	SF	275,000	350	785
Charter School	Students	500	20	25
Public School	Students	900	20	45
Neighborhood Retail	SF	104,500	400	261
Community Commercial	SF	175,000	400	438
MF Residential	Units	2,100	20	105
Community Parks	Acres	32.9	6	5
Total				2,433

Attachment 7

Housing Plan and Community Benefits

Program

Virginia Smith Trust Property

Affordable Housing Plan

The Virginia Smith Trust property, once developed, will result in significant community benefits in the form of a significant increase in the Smith Trust Scholarship fund(s). Those benefits are certainly enough to capture the imagination and support of the public and regulators. However, there are additional layers of community benefits that should be considered for the project at this time. These relate to affordable housing, providing incentives to workers on the UC Campus to cement the economic relationship between the VST and UC properties, providing features that reduce environmental impacts, and providing ongoing funding for services and programs that further MCOE's mission.

Affordable Housing/UC Incentives

In the larger scheme, the housing stock in Merced is adequate and affordable. Prices are still somewhat depressed from over-supply and the effects to the Great Recession. Apartments provide an affordable alternative to home ownership. However, it is still believed that programs should be provided to create workforce housing, increase the supply of housing available to UC employees and students, and provide preferences and incentives for individuals who work on campus at UC Merced. There should also be owner-occupancy restrictions in the single-family detached units to eliminate or substantially reduce the potential for converting single family neighborhoods to tracts of investor-owned rental for students (Isla Vista), and a special Workforce Housing Incentive Program should be established (basically a first time homebuyers program) which will provide deed-restricted units for workforce housing eligible median income households (households earning 80-120% of the Area Median income). This workforce housing program seeks to market the Project to all UC employees, reduce the influence of investors in the limitation of housing choice and availability, provide a down payment assistance program for Workforce Income families, and provide a certain number of units that will be deed-restricted. Finally, VST and its builders will team up with affordable housing providers to provide lots for "sweat equity" self-help housing. The elements of the program are as follows:

1. **Local Preference ("UC Workers First")**. The UC and University Community Plan areas have been planned as an integrated unit for the last 25 years. The hope has always been that the UCP properties, including VST, would provide the residential and commercial support for UC's students and staff. It is known that many of the UC's staff live outside of the community and students are being accommodated inside the City at other locations. These commute trips result in an estimated 17.7 million vehicle miles (VMT) traveled each year by students and staff using passenger cars to and from the university. If VST can capture 35 percent of the current students, and 50% of the current staff, all vehicle trips will be shortened, and there will be a significant shift to non-vehicle modes of transportation resulting in a VMT reduction of approximately 9 million miles per year.

   There are obvious benefits to in making sure that UC students and staff are significant elements of the VST project. Realizing the VMT reduction benefits will require incentives to lure existing staff

and students to the site. Incentives will be established to provide priority for existing UC staff and students as follows:

a. Each development phase of VST is to maintain the interest list and shall separate and prioritize names of local employees based on interest in product type.

b. When product becomes available, usually 270-360 days prior to certificate of occupancy (assuming a 180-day construction period), the builder shall notify those UC staff of the opportunity to purchase a residence starting with the "top of the list." Those individuals shall have approximately 60 days to get pre-qualified to purchase the residence and to provide the builder with proof that the individual is a UC employee (i.e. paycheck or bonafide offer of employment from a local employer.)

c. If an individual fails to get pre-qualified or fails to provide the builder with proof of UC employment within the time periods above, then the builder may remove or put that name at the end of the interest list.

d. UC staff and employees shall be provided with an incentive package worth $5,000, including reductions off base price, option allowances, free bikes for transportation, allowance for closing costs, allowance for upgrades, or similar incentives at the discretion of the builder. This incentive would apply to all UC staff regardless of income.

2. **Owner-Occupancy Restrictions**. Establishing a stable and desirable neighborhood for UC staff will require some segmentation and separation of the student rentals and the ownership units. Builders will agree, with exceptions that are stipulated in the Development Agreement, to include restrictions in the purchase agreement and Covenants Conditions and Restrictions (CC&Rs) for the single family detached units (R-1 and R-2) to restrict these units for owner-occupancy only for the first five years after sale. In the case of units with Accessory Dwelling Units (ADUs), the Principal Dwelling or the ADU will need to be occupied by the property owner. The final form of these agreements will be determined at the time of development of the first final map, and will provide for appropriate monitoring and enforcement.

3. **Workforce Housing Incentive Program (WHIP).** The project will provide 88 deed-restricted units, to families in the Workforce Housing category, defined as household incomes of 80%-120% of Area Median Income (AMI). Prices would be limited to no more than that required to achieve an Index of Affordability ("Index") of 31 percent (cost of housing including mortgage principal, mortgage interest, taxes and insurance divided by 140% of AMI). The maximum purchase price would be equal to 5.65 times (140% of 4.05 multiplier) the median income for each household size. These units would be deed restricted for five years, under a program similar to the County and City's First Time Homebuyers and Equity Sharing programs.

4. **Down Payment Assistance Program**. The project would provide a matching down payment assistance (DPA) of five percent of the purchase price up to $5,000 as a "silent second" on the initial sale of the five percent of the R-1 and R-2 homes. These units would have to be occupied by a UC staff earning less than Countywide "Moderate Income Limit" for Merced County (currently at $77,750 or

less per year per family), as determined by State HCD. These units would be occupied by a household for a minimum of ten (10) years; if resold within this ten-year period, the units would need to be sold to another income qualifying Workforce Housing buyer and the 10-year deed restriction would reset to 10 more years with the new buyer of the home. The DPA loan would be repaid upon sale of the unit or refinancing, and the proceeds would be placed in a revolving loan fund to assist future workforce, moderate, or lower income home buyers in the VST project. Unlike a reduction in price that would be captured by a future seller at the end of the affordability term, this assistance would continue throughout the life of the funds to assist buyers in the development.

5. **Self Help Housing**. Self-help housing projects are very common in the Central Valley. In contrast to other affordable housing programs, the homes are built under the mutual self-help method of construction where each family is required to contribute a minimum of 40 hours a week working on all the homes for a period of 9 to 12 months. Family hours can be provided by the owners-to-be, any household member 16 years of age or older and approved helpers. Together, families pour foundations, frame homes, install electrical wiring, hang doors and windows and even lay tile and paint. These labor hours, or "sweat equity", are used as the down payment on their new home, reducing costs for a new home they could otherwise not afford. The project sponsor assists each applicant/builder with securing the loans needed to build their home. Special financing from the U.S. Department of Agriculture and the State of California makes these homes affordable.

   Participants choose from standard floor plans. As it could be applied to the VST project, these floor plans would be established by a master builder with the same basic specifications and finish qualities of market rate homes that are constructed by a builder for the balance of the development. The participating families not only work on their own home, but everyone works on every house in the building group and no one moves in until all houses are completed, creating a community bond. Self Help Enterprises, a local non-profit housing provider is currently developing a self-help project in Planada.

   There are two product types that would adapt well to this model: the R-2 cluster and the R-1-5 cluster units. Both have "shared" front yards and share driveways that would be compatible with the way the self help housing in constructed. It is possible that a project could focus on and give priority to staff at UC. Qualifying families and participants must have good credit status, stable income from employment and other sources of income, income that does not exceed eligibility guidelines, ability and willingness to meet the labor requirement, and be a permanent resident and a U.S. citizen. These programs are normally focused on the "Lower Income" category, meaning they would focus on families with incomes between $32,500 and $42,500 per year. This program will result in 24 lower income ownership units.

6. VST will provide improved sites for 100 multifamily units, 50 units in each major phase of development. This will result in 75 units for very low income families and 25 units for lower income families.

Community Foundation

The proceeds from the sale of the property will establish a significant financial scholarship fund to assist college students from Merced. Professional educators know that success in high school, and subsequently in college, is determined by many factors that occur well before a child enters high school, including the availability of cultural enrichment programs, offerings for science, technology, engineering and math, exposure to the "outside world", field trips to broaden students' experience and expectations, and other factors. These activities, however, do not qualify for funding under the provisions of the Smith Trust. However, ongoing funding for improvements, services and programs that address this can be funded from a "Community Foundation" that has funding from a contribution from the sale and re-sale of properties in the project.

One example of this approach is the Clovis Community Foundation that was established by Wathen Castanos Homes. Wathen Castanos established a "Community Benefit Fee" in each of its subdivisions equal to 1/10th of 1% of the sales prices of every home sold or resold. The funds generated by the Community Benefit Fee are intended to create a perpetual source of income to benefit the community. The proceeds are distributed by the Foundation's Board of Directors to the most deserving quality of life projects to enhance recreation, arts, and culture in the community. In almost every instance the money provided by the Foundation must be matched by the grantee. This ensures that the impact of the Community Benefit Fee is twice as impactful. In short, this program is a way for the builders and subsequent home buyers to reinvest in Clovis by "giving something back by paying it forward." It has created a program that "keeps on giving" well after the completion of the project. Mark Keppler, Chairperson and Executive Director of the Clovis Community Foundation, was consulted in the development of this proposal, and is available to inform VST and the Foundation about organizational, legal and administrative features to set up the Community Benefit Fee.

In the spirit of the original intent of the trust to support educational success, VST could set up a Community Educational Enhancement Fee that would levy a percentage or fixed fee on property sales and resales (including residential and commercial property) equal to 0.25% of the sales price. Since the Merced County Office of Education Foundations programs and objectives align with this kind of activity, the MCOE Foundation could be used and a Foundation a sub-account setup to receive and expend the funds in a manner consistent with the intent of the program. A 0.25% contribution fee would generate approximately $150,000-$200,000 per year in the early years of the buildout of the project (2025-2030), with that increasing to over $500,000 per year after year 10 (2035).

VST Development
Affordable Housing Proposals

Program	Description		Units				Affordability Restrictions
			Very Low	Low	Moderate	Above Moderate	
Workforce Housing Incentive Program (WHIP)	Provide units initial prices affordable to moderate income (80%-120% of AMI) based on lender underwriting criteria for insurance, FNMA interest rate, common area charges, etc. Program also includes a $5,000 down payment assistance. This would be administered as an equity sharing program where buyer will fully vest after 10 years, and progressively gain a great share of the equity in years 1-9. Applies to 5% of the R-1 and R-2 housing stock.				88		Shared equity program for 10 years.
Self Help Program	Provide improved R-2 sites for sweat equity program. Buyers would build units according to standards and specs provided by VST builders. Applies to 5% of the R-2 housing units.			24			Typical Self Help Equity Share Program
UC Workers First /Incentives	Local preference and incentives for UC workers to encourage locating in the development to realize reduction in Vehicle Miles Traveled and synergy between UC and UC community. Plan is to encourage up to 50% of staff and 35 percent of students. $5,000 builder incentive toward price reductions, option allowances, allowance for closing costs, At discretion of builder.			100	500	200	None
Affordable Multifamily Construction Program	VST will provide improved sites for 100 multifamily units, 50 units in each major phase of development		75	25			Affordable for longest feasible period per federal and state Tax Credit program requirements
Owner Occupancy Restrictions	To address the issue of an imbalance of rental and ownership units in the single family detached neighborhoods, the R-1 portions of the project would be limited to owner-occupants only for the first five years after construction. This would allow the R-1 neighborhoods to build out and stabilize and not have a disproportionate number of rentals. The R-2 (75% owner-25% rental) and R-3 (50% owner-50% rental) portions are expected to be a mix of owner and rental units, and the R-4 units are expected to be						None. Owner occupancy restriction in effect for first five years after initial sale.
Planned Housing	Housing is planned at densities that are considered affordable to lower income households. The housing types have been developed to represent the range of incomes represented at UC Merced.	**X-Low**	**Very Low**	**Low**	**Moderate**	**Above Moderate**	**Total**
	R-1 Low (12,500)					148	**148**
	R-1 Low-Medium (7000)					357	**357**
	R-1 Medium (5000)				693		**693**
	R-1 Medium (5000, Cluster/Alley)				79		**79**
	R-2 (Cluster)			24	228	228	**480**
	R-3 For Sale				230		**230**
	R-3 For Rent			127	147		**274**
	R-4 Student (60%)			894			**894**
	R-4 Market (40%)		75	272	247		**594**
	Town Center Mixed Use			50	58		**108**
	Total		**75**	**1,367**	**1,682**	**733**	**3,857**
	Project		1.9%	35.4%	43.6%	19.0%	100.0%
	County RHNA Requirements	12.20%	12.2%	17.4%	15.9%	42.3%	100.0%
	Percent of Total County RHNA Requirement	0.00%	13.8%	176.4%	236.6%	38.9%	
	City RHNA Requirements	12.20%	12.20%	17.40%	15.90%	42.30%	
	Percent of Total City RHNA Requirement	0.00%	11.09%	141.51%	194.23%	31.22%	

Attachment 8

Project Consistency with General Plan Policies
and Annexation Merit Criteria

City General Plan Annexation Policies
And Merit Criteria

General Plan Annexation Merit Criteria

1.3.g Evaluate future annexation requests against the following conditions:

a Is the area contiguous to the current City limits and within the City's Specific Urban Development Plan SUDP/Sphere of Influence (SOI? Do the annexed lands form a logical and efficient City limit and include older areas where appropriate to minimize the formation of unincorporated peninsulas?

Response: The project is withing the City's SUDP. The city has spent significant time and resources trying to identify a contiguous "path to annexation" for UC and adjacent properties. Annexation strategies which involve annexation of properties between UC and the existing city limits have been found to be infeasible. Annexation of the subject property is allowed under the special provisions of AB 3312. The City has commenced annexation of UC Merced and VST would be eligible for annexation thereafter. The property is part of the University Community Plan area that is intended for development to support the UC.

b Is the proposed development consistent with the land use classifications on the General Plan Land Use Diagram (Figure 3.1?

Response: The General Plan designation on the property is "UC Community North". The development of the project will be consistent with the amended University Community Plan, the County's UCP development policies, and the City's policies regarding development of the UCP area.

c Can the proposed development be served by the City water, sewer, storm drainage, fire and police protection, parks, and street systems to meet acceptable standards and service levels without requiring improvements and additional costs to the City beyond which the developer will consent to provide or mitigate?

Response: Yes. Engineering studies have confirmed that the project can be served by sewer, water and storm drainage facilities. Fire and police facilities are designed for the site, and the project will generate adequate revenues to support needed public services. Streets have been designed to accommodate planned traffic, including Campus Parkway.

d Will this annexation result in the premature conversion of prime agricultural land as defined on the Important Farmland Map of the State Mapping and Monitoring Program? If so, are there alternative locations where this development could take place without converting prime soils?

Response: Development of the site will result in the conversion of prime farmland. The site has been designated for development by the City and the County for the past 15 years. Development of the site is necessary to support UC operations. City General plan policies recognize that development of the UCP properties will convert prime farm land, and such development is necessary to support the UC. There are no al-ternative locations since those alternative locations would not be next to UC as is necessary to fulfill the objective of the UCP.

e) Will a non-agricultural use create conflict with adjacent or nearby agricultural uses? If so, how can these conflicts be mitigated?

Response: The County Zoning Ordinance requires setbacks to long-term agricultural lands, and the project integrates those setbacks. In addition the amended UCP includes setbacks to existing onsite and adjacent agricultural lands.

f) Does annexation of the area help the City reach one of the following goals?

1) Does annexation of the area bring the City closer to annexation of the UC Merced campus and University Community?

Response: Yes. The site is in University Community.

2) Does the area contain significant amounts of job-generating land uses, such as industrial, commercial, office, and business/research & development parks?

Response: Yes. The project site has 862,000 SF of commercial/office uses, which will generate over 2,400 jobs.

3) Does the project provide key infrastructure facilities or other desirable amenities, such as the extension of major roads, utility trunk lines, parks and recreational facilities, etc.?

Response: Yes. The project will involve the development key portions of Campus Parkway and Cardella Road. It will also install water and sewer mains along the project frontage and to Bellevue and G Street. The project will also include pedestrian and bike trails, a community sports park, and a community recreational center.

Other General Plan Annexation Goals

UE-1.4 Continue joint planning efforts on the UC Merced and University Community plans.

Response: The collaborative process for transition from County jurisdiction to the City will achieve this.

1.1.a Direct development away from significant concentrations of "Prime" agricultural soils and give priority to the conversion of non-prime agricultural land if reasonable alternatives exist.

Urban expansion should be directed away from significant concentrations of "prime" soils and where agricultural use can still be realistically and economically sustained. Development within the City's SUDP/SOI should be developed in such a manner as to minimize impacts on "prime" soils along the City's urban fringe. It is recognized that it is not possible to avoid all "prime" soils. The UC Merced Campus and University Community are located on prime farmland to avoid sensitive wetlands habitat. Some areas that contain prime soils are adjacent to important circulation and employment corridors and will need to be developed for urban use in order to achieve critical City economic development and circulation goals. Accommodating growth in a compact form within the City's growth area will decrease the pressure to develop outside urban areas where more prime soils and intensive agricultural operations now exist.

Response: UC and UCP are recognized as important exceptions to the recommendation to avoid prime ag land, even at the expense of "compact" growth. The bio impacts and the ag impacts of the projects have and will continue to be mitigated by setting aside other lands for permanent conservation, habitat and farming operations. The UCP areas contain the Campus Parkway which is an essential element of the City and County circulation system. Without the development VST, UC and the Hunt properties, Campus Parkway will not be constructed. Development of the VST property adjacent to the UC will also substantially reduce the traffic impacts of the UC by locating development closer to it, and will reduce the number of annual passenger vehicle miles traveled by 7,500,000 to 10,000,000. This would have corresponding beneficial air quality and traffic effects.

1.2.c Continue to limit the expansion of City utilities to only those areas within the established urban boundary.

Proposals for urban development within the City's SUDP/SOI shall be considered only after annexation has taken place. To be eligible for annexation, a property must be contiguous to the City Limits and be located within the SUDP/SOI. City utilities should not be extended outside of the City limits except in cases where public health and safety are threatened or a significant public interest (such as the UC campus) is served. If it is necessary for technical/economic reasons to allow utilities to cross unincorporated territory (i.e. water/sewer main extensions), actual access to such utility services will be restricted to those inside the City limits until such time as annexation occurs. Annexation agreements would be utilized in these cases to address relevant issues and service costs.

Response: The possible extension of City utilities to the VST site would ideally happen after annexation. AB 3312 will provide the opportunity to do that. However, it may be necessary to provide services to the VST site during some interim term prior to annexation. Eventual annexation of the VST would be assured through a Pre-Annexation Development Agreement and a recorded Consent to Annex on all affected properties. As noted in Policy 1.2.c, services may be extended outside of City limits, as they have been done for UC, "…where public health and safety are threatened or a significant public interest (such as the UC campus) is served. If it is necessary for technical/economic reasons to allow utilities to cross unincorporated territory (i.e. water/sewer main extensions), actual access to such utility services will be restricted to those inside the City limits until such time as annexation occurs. Annexation agreements would be utilized in these cases to address relevant issues and service costs." The development of the UCP properties has been considered an integral part of the successful development of UC Merced, both physically and economically. There is a "significant public interest" in the development of the VST property as follows: 1) its successful development will result in the establishment of a $75 million to $100 million endowment for local college scholarships, generating $5 million per year for local college scholarships; 2) development of the VST site would reduce the number of vehicle miles traveled in the community 7.5 million to 10 million miles, (___ percent of the current level) and would reduce the impacts of UC on the local circulation system; 3) UC and UCP properties have been planned as an integrated unit for the past 25 years, and they can not be successfully developed without the other; 4) development of Campus Parkway will need to occur in the near future to accommodate UC traffic, and to reduce impacts of UC traffic on city and county roadways. Development of VST would enable this to happen; 5) development of the VST properties would have beneficial air quality impacts because of the significant reduction the number of vehicle miles traveled; 6) the VST property would primarily "serve" the UC Campus; and 7) despite significant planning efforts by the City, it is unlikely or unknown when, if or how development could become contiguous to the city so that a "contiguous" annexation the the VST property could occur. There are Rural Residential properties West of Lake Road who will not consent to annexation, and annexation along the Bellevue Corridor is dependent on those property owners successfully completing environmental documents and significant mitigations associated with their development. There area also Rural Residential properties along Bellevue that may prevent the eventual annexation of the VST property. Waiting for a contiguous corridor annexation would defer indefinitely the community economic and physical benefits associated with the development of the VST property listed above.

1.3.a The City should continue to require that all new urban development and annexations be contiguous to existing urban areas and have reasonable access to public services and facilities.

"Leap-frog development" tends to be cost-prohibitive in these times due to the high up-front costs of extending utility lines, streets, etc., across undeveloped properties to outlying areas. Such development should be discouraged in most cases because of the service inefficiencies it creates. Exceptions can be made for industrial areas which for business recruitment reasons often need to provide infrastructure and services prior to development. Other exceptions may be made, with strong justification on a case-by-case basis, for other areas which may serve the public interest through early development.

Response: The development of the UCP properties has always been considered in the context of serving the UC. The requirements for a contiguous annexation assumes that services may need to be extended. In this case, the City is already providing sewer and water service to UC, and the VST property can economically connect by extending service lines to Bellevue/Lake. UC is also considered an "urbanized" area and contains 10,000 residents (students) and a support population of 1,600. A City fire station exists within a 4-minute travel time (according to the Fire Master Plan) from City Fire Station 55.

1.4.a Incorporate the UC Merced campus area as part of the City's SUDP/Sphere of Influence and begin planning for the eventual annexation of the Campus.

This designation within the SUDP/SOI would facilitate the eventual incorporation of the Campus into the City. The City should begin the process of planning for the eventual annexation of the Campus to the City, including evaluating various corridors for possible annexation in order to bridge the gap between the current City limits and the Campus boundary. Planning of the land uses along those corridors should also begin as well, including possible locations for research and development parks.

Response: The city has spent significant time and resources trying to identify a "path to annexation" for UC. The corridor annexation along Bellevue appears to be infeasible and unwieldy. The City has completed a Bellevue Corridor concept plan, and is undertaking an annexation study. It is possible that incremental annexations may take place in the future as properties annex from G Street east to Lake Road, but that would be depend the completion of future environmental studies, property owner willingness to develop, and other factors. The City has commenced annexation of UC Merced and VST would be eligible for annexation thereafter.

1.4.b Working in cooperation with the County, implement the following policy statement from City Council Resolution #2006-89 regarding the University Community Plan Area.

<u>Long-term Land Use and Governance</u>

The University Community should be incorporated into the City of Merced, and should not be part of the unincorporated County, or a separate City.

• It is in the public interest that the University Community's development not result in the creation of a new city or other jurisdiction.

Response: All parties agree that UCP should annexed ASAP.

• Multiplication of jurisdictions can lead to conflicts, which should be avoided. A separate City on Merced's border is inherently undesirable.

Response: All parties agree that UCP should annexed ASAP.

• The University Community is expected to develop at an urban density. Merced County does not currently provide urban services. The City is already serving the University of California campus, and it is logical for the City to serve the adjacent area as well.

Response: All parties agree that UCP should annexed ASAP.

• No separate wastewater treatment plant should be allowed or constructed in the area, given the risks to the City's groundwater supply that could result, and competition for qualified licensed operators. This statement does not, however, preclude consideration of innovative methods of wastewater treatment for the area which are reasonably viable from an economic perspective.

Response: All parties agree that UCP should annexed ASAP. The project's preference is to connect to the City's wastewater system, if possible, but the EIR for the project will explore other feasible options. The project will include on-site measures to reduce wastewater flows such as use of the EPA's "Water Sense" water conservation measures.

The University Community should be developed with the use of annexation agreements and phased annexations, not through the creation of a County services district, either as an interim or permanent measure.

Response: Agreed. However, the project will phase its development through a phasing mechanism established in the specific plan as preferred by LAFCo, not through "phased annexations". The City has suggested that formation of interim or temporary County services district may be necessary for the city to provide services to the site through an Out of Boundary Service Agreement (OBSA). Therefore, a County services district may be required in the interim.

The City of Merced is willing to provide interim sewer and water services from existing sewer and water lines along Bellevue Road that serve the University campus, provided that certain conditions are met:

• Interim services to the University Community require compliance with environmental law and permitting, including the California Environmental Quality Act (CEQA) and approval by the Local Agency Formation Commission (LAFCo).

Response: As noted in the policy, "…interim services to the University Community" are permitted, subject to compliance with CEQA and LAFCo. Past and recent discussion with LAFCo indicate its willingness to approve an OBSA for the project, and to provide that as a preferred alternative a Bellevue Corridor annexation strategy. The 2004 UCP EIR covered the impacts of the development of the project, and that document will be updated as part of the entitlement process. The EIR will also cover the impacts associated with utility extensions to serve the project site.

• Prior to providing interim services, the City must receive an acceptable plan for long term service provision, enforceable commitment for annexation, and financial planning and commitments necessary to fund long term services.

Response: Agreed. It is assumed that these commitments will be covered in the Pre-Annexation Development Agreement.

The City should encourage annexation along the Bellevue Corridor to provide contiguity between the University Community and the City of Merced.

Response: We agree that the City should encourage annexation of the Bellevue Corridor property as the earliest possible time so that the City, UC and UCP areas will be contiguous. However, contiguity should not be a pre-condition for servicing the project.

Attachment 9

Applicant/Developer Experience

AREAS OF EXPERTISE

Land Development

Economic Analysis and Feasibility Studies

Project Management

General Plans

Specific Plans

Housing Feasibility Studies

Land Use Planning

EDUCATION

Master City and Regional Planning, 1980, California State University Fresno

MA, Economics, 1976, University of Colorado

BA, Economics, 1973, California State University Fresno

EXPERIENCE

Lecturer, Econ Statistics	1974-76
Budget Analyst, City of Fresno,	1976-78
Sr Planner, Quad Consultants,	1978-86
Asst Community Development Director, City of Visalia	1986-93
Principal Planner, Quad Consultants,	1992-2002
Chairman, Quad Knopf,	2002-2007
Vice President, Mangano Co.	2007-2011
President, Peck Planning and Development	2006-Present

Stephen J. Peck, AICP
President

Peck Planning & Development, LLC

Mr. Peck is responsible for all aspects feasibility assessment, design, and entitlements for commercial and residential land development projects from raw dirt to issuance of building permits. Overall, he has been responsible for planning and development for projects totaling over 7,500 residential units, and for over 6,000,000 SF of commercial and industrial space.

Mr. Peck's experience in the Central Valley includes residential subdivisions in Kingsburg, Visalia, Tulare, Bakersfield and Fresno County. His commercial development projects include Sequoia Gateway Commerce Center, and industrial projects from Bakersfield to Sacramento.

Mr. Peck's development experience includes project manager and developer representative for a 126-acre, 1.5 million square foot regional commercial center in Tulare County (which involved significant City-Count coordination and utility service agreements; a 50-acre residential development in a County area adjacent to Kingsburg which involved tax sharing agreements and common design guidelines; and, as a development consultant for various developers on the Central Coast and Central Valley representing 12,500 residential units and 7,500,000 square feet of commercial, office and industrial space. These projects involved development agreements, Mello-Roos financing, specific plans and specific plan amendments, Master HOAs, environmental impact reports, and significant public outreach and hearings.

Prior to starting his land development consulting firm 15 years ago, Mr. Peck worked as a planning consultant for QuadKnopf Consultants for a total of 23 years where he was responsible for the firm's planning, redevelopment and environmental science practice areas, covering the Central Valley from Bakersfield to Sacramento. His work included General Plans and general plan elements for the cities of Livingston, Merced, Gustine and Visalia, and redevelopment projects for Merced and Merced County.

After living in Visalia for 30 years, Mr. Peck now lives in Morro Bay with his wife of 47 years and two black labs.

He is a member of the San Luis Obispo de Tolosa Rotary Club, and the San Luis Obispo, Visalia and Morro Bay Chambers of Commerce.

References Available Upon Requests

REGISTRATIONS / CERTIFICATIONS

Certified Planner, American Institute of Certified Planners (AICP)

PROFESSIONAL ORGANIZATIONS

American Planning Association (APA)

American Institute of Certified Planners (AICP)

California Redevelopment Association (CRA)

National Community Development Association

Urban Land Institute

California Association for Local Economic Development

Chair, Visalia Chamber of Commerce

Chair, Visalia Economic Development Corp.

Chairman, Tulare County Economic Development Corporation

Member, San Luis Obispo Chamber of Commerce Economic Development Committee

Chair, Morro Bay Chamber of Commerce

International Council of Shopping Centers

Attachment 10

Project Financing and Implementation Strategy

VST Development Project

The VST project will be entitled directly by VST and its consultants. VST has secured adequate funds to complete the entitlements, and will build on the entitlement work already done in the County's UCP, County General Plan, City General Plan, and UC's Long Range Development Plans. VST will complete the entitlements in the County and annexation to the City, and sell the property to the Master Developer on an installment/take-town schedule (80-acre takedowns are assumed). VST would farm and maintain the property pending disposition to the Master Developer. VST's entitlements would include design guidelines, infrastructure phasing, infrastructure financing and maintenance mechanisms, development and design policies, and performance measures that will obligate the Master Developer and builders to implement the Specific Plan and Development Agreement(s).

Subsequent to the entitlements, VST will enter into a long-term property sales and performance agreement with a Master Developer. The Master Developer will be responsibility for all offsite and backbone infrastructure that is appropriate to a development phase or sub-phase, and sell "blue top" super pads to selected builders. Individual builders would build out all of the intract and onsite improvements, and the residential and commercial buildings.

Attachment 11

List of Public Services Requested and Preliminary
Estimate of City Fiscal Impact

Sewer Collection and Treatment. A commitment is requested for approximately 600,000 gallons per average dry day for sewer collection and treatment capacity. This volume estimate is based on flow monitoring for newer developments in the community. Engineering studies have confirmed that there is adequate capacity in the City's sewer collection system and treatment systems to fully accommodate the project, considering existing flows, approved and pending projects, and full build-out of UC Merced. The project would extend a combination force main/gravity sewer to Lake Road/Bellevue Avenue to connection to the 26-inch Sewer Trunk that currently serves UC Merced. VST would extend this line at its own cost, and seek reimbursement from utility building fee credits and/or benefitting adjacent property owners. The project would pay applicable assessments for Treatment Plant Connection Fees (per City Municipal Code Section 15.16.040), and Sewer Collection Fees for projects located outside of the current North Merced Sewer Assessment District (per City Municipal Code Section 15.16.070). Refer to Attachment 4 for project Sewer Master Plan. The cost of operations and maintenance for sewage collection and treatment would be provided from monthly utilities costs.

Water Supply. A commitment is requested for service for approximately 1.2 million gallons per day of water. This volume estimate is based on current water use estimates from the City water department, and projected flows from implementing "WaterSense" lower flow fixtures and low-water using landscaping. flow monitoring for newer developments in the community. Engineering studies have confirmed that there is adequate capacity in the City's sewer collection system and treatment systems to fully accommodate the project, considering existing flows, approved and pending projects, and full build-out of UC Merced. The project would extend a combination force main/gravity sewer to Lake Road/Bellevue Avenue to connection to the 26-inch Sewer Trunk that currently serves UC Merced. VST would extend this line at its own cost, and seek reimbursement from utility building fee credits and/or benefitting adjacent property owners. The cost of operations and maintenance for sewage collection and treatment would be provided from monthly utilities costs.

Public Safety. Police and Fire would be provided. A site has been designated for a police substation and a fire station on the project site. The project would dedicate the sites, and possibly construct the improvements with the proceeds of CFD funds, and would receive impact fee credits.

Other Services. Other services include administration, planning, recreation, public works, streets and parks maintenance. A Community Facilities District would be formed to provide ongoing maintenance and operations funds for public parks, streets, public safety and landscaping. Public parks would be constructed by the Master Developer or builder, and would be funded from a project-specific parks fee. Major streets in the project would be funded by the Master Developer, with city fee credits provided for any facilities that are funded from City Public Facilities Fees, and from a UCP-specific fee traffic fee supplement. Current and proposed City Transportation Public Facilities Fees do not include some facilities necessary to support the project including Campus Parkway (on the project site, and north and south of the project site), Lake Road, Yosemite Avenue between Lake and Kibby Road, and others. The City's existing and proposed fees do include major road and intersections west of Lake Road that may be impact by the project such as Bellevue, (future) Cardella Road, G Street, Yosemite Avenue, and selected intersections. The project will include a project-specific Transportation Fee program that

will allocate fair share costs of transportation facilities in the Public Facilities Fees to the project, plus fees for facilities east of Lake Road that are impacted by the project. The costs operations and maintenance for Other Services would be provided by various fiscal revenues from the project, including property taxes, in-lieu fees, sales taxes (general and special revenue). Per the attached table, the total City General Fund revenue from the project is estimated to be $6.7 million per year, including $3.3 million from property taxes (net, after the County tax sharing agreement), $607,500 in sales taxes, $2.2 million in VLF makeup, and $629,000 in various other revenues. The project will participate in the City Community Facilities District financing program.

	Tax Factors and AV										
	Phase 1 (APN 060-020-048) (TRA 83-28)					Phase 2 (APN 060-010-004) (TRA 110-06)					Total
Acres	304.58					340.10					644.68
Tax Rates											
General	1.000000					1.000000					
Merced City School Bonds	0.005450										
Weaver Union School Bonds						0.057300					
Merced High School Bonds	0.032500					0.032500					
Merced College Bonds	0.011600					0.011600					
Total	1.049550					1.101400					
Population	7,265					3,844					11,109
Base AV	768,000.00					663,000.00					1,431,000
Buildout AV-Residential	$ 614,754,750					$ 417,031,750					1,031,786,500
Buildout AV-Commercial	$ 222,062,500					$ 14,987,500					237,050,000
Total Buildout AV	$ 836,817,250					$ 432,019,250					1,268,836,500
Incremental AV	$ 836,049,250					$ 431,356,250					1,267,405,500
Tax Allocation	0.379083					0.396196					
Allocation/AB8 Factor	Pre-ERAF	Tax Sharing Agreement, Section 4	Net Tax Rate, Pre-ERAF After Annexation	ERAF Allocation Pre County Sharing	Post-ERAF	Pre-ERAF	Tax Sharing Agreement, Section 4	Net Tax Rate, Pre-ERAF After Annexation	ERAF Allocation Pre County	Post-ERAF Rate	
County General	0.238822	(0.238822)	-	48.487%	-	0.249603	(0.249603)	-	48.487%	-	
County Roads Sales Tax (.25%)	-		-		-			-		-	
County Public Safety Sales Tax (.50%)	-		-		-			-		-	
County Health and Social Services (.50%)	-		-		-			-		-	
City of Merced	0.242364	0.238822	0.481186	22.051%	0.375081	0.253304	0.249603	0.502907	22.051%	0.392012	
County Fire	-		-	-2.346%	-			-	-2.346%	-	
Merced Elementary	0.192323		0.192323	0.000%	0.192323			-	0.000%	-	
Weaver Elementary	-		-	0.000%	-	0.198813		0.198813	0.000%	0.198813	
Merced Union High School	0.148291		0.148291	0.000%	0.148291	0.154984		0.154984	0.000%	0.154984	
Merced College	0.058769		0.058769	0.000%	0.058769	0.061421		0.061421	0.000%	0.061421	
School Equalization	0.016541		0.016541	0.000%	0.016541	0.017288		0.017288	0.000%	0.017288	
School Service	0.033141		0.033141	0.000%	0.033141	0.034637		0.034637	0.000%	0.034637	
School Capital Outlay	0.004077		0.004077	0.000%	0.004077	0.004261		0.004261	0.000%	0.004261	
Regional Occupational Center	0.002505		0.002505	0.000%	0.002505	0.002618		0.002618	0.000%	0.002618	
Mosquito Abatement	0.014008		0.014008	11.697%	0.012369	0.014640		0.014640	11.697%	0.012928	
Merced Cemetery	0.008067		0.008067	20.228%	0.006435	0.008431		0.008431	20.228%	0.006726	
Merced Irrigation District	0.041092		0.041092	38.043%	0.025459			-	38.043%	-	
ERAF			-		0.125009			-		0.114313	
Subtotal	**1.000000**	**-**	**1.000000**		**1.000000**	**1.000000**	**-**	**1.000000**		**1.000000**	
Special Taxes											
Merced High	0.032500					0.032500					
Merced College	0.011600					0.011600					
Merced City Elementary	0.005450					-					
Weaver Union Elementary	-					0.057300					
Subtotal	**0.049550**					**0.101400**					
Total	**1.049550**					**1.101400**					**1.067204**

	Property Taxes						
	Base	Phase 1 (APN 060-020-048)	Tax Sharing Agreement, Section 5 @ 63%	Phase 2 (APN 060-010-004)	Tax Sharing Agreement, Section 5 @ 63%	Total	Total Incremental
Acres							
Tax Rates							
General							
Merced City School Bonds							
Weaver Union School Bonds							
Merced High School Bonds							
Merced College Bonds							
Total							
Population							
Base AV		8,061		7,302		15,363	
Buildout AV-Residential		6,452,158		4,593,188		11,045,346	
Buildout AV-Commercial		2,330,657		165,072		2,495,729	
Total Buildout AV		8,782,815		4,758,260		13,541,075	
Incremental AV		8,006,755		4,087,958		12,094,713	
Tax Allocation							
Allocation/AB8 Factor							
County General	$ 2,921	$ -	$ 981,426	$ -	$ 529,549	$ 1,510,975	$ 1,508,054
County Roads Sales Tax (.25%)		$ -		$ -		$ -	
County Public Safety Sales Tax (.50%)		$ -		$ -		$ -	
County Health and Social Services (.50%)		$ -		$ -		$ -	
City of Merced	$ -	$ 3,138,740	$ (981,426)	$ 1,693,567	$ (529,549)	$ 3,321,331	$ 3,321,331
County Fire	$ -	$ -		$ -		$ -	$ -
Merced Elementary	$ -	$ 1,609,392		$ -		$ 1,609,392	$ 1,609,392
Weaver Elementary	$ -	$ -		$ 858,910		$ 858,910	$ 858,910
Merced Union High School	$ -	$ 1,240,925		$ 669,561		$ 1,910,485	$ 1,910,485
Merced College	$ 1,563	$ 491,789		$ 265,351		$ 757,140	$ 755,577
School Equalization	$ -	$ 138,418		$ 74,687		$ 213,105	$ 213,105
School Service	$ 2,845	$ 277,330		$ 149,639		$ 426,968	$ 424,123
School Capital Outlay	$ 2,218	$ 34,117		$ 18,408		$ 52,525	$ 50,308
Regional Occupational Center	$ 879	$ 20,962		$ 11,310		$ 32,273	$ 31,394
Mosquito Abatement	$ 247	$ 103,510		$ 55,849		$ 159,359	$ 159,111
Merced Cemetery	$ 496	$ 53,851		$ 29,056		$ 82,907	$ 82,411
Merced Irrigation District	$ 61	$ 213,048		$ -		$ 213,048	$ 212,987
ERAF	$ 37	$ 1,046,094		$ 493,854		$ 1,539,948	$ 1,539,911
Subtotal	**$ 11,267**	**$ 8,368,174**		**$ 4,320,193**		**$ 12,688,367**	**$ 12,677,100**
Special Taxes							$ -
Merced High	$ 465	$ 271,966		$ 140,406		$ 412,372	$ 411,907
Merced College	$ 166	$ 97,071		$ 50,114		$ 147,185	$ 147,019
Merced City Elementary	$ -	$ 45,607		$ -		$ 45,607	$ 45,607
Weaver Union Elementary	$ 944	$ -		$ 247,547		$ 247,547	$ 246,603
Subtotal	**$ 1,576**	**$ 414,643**		**$ 438,068**		**$ 852,710**	**$ 851,135**
Total	**$ 12,842**	**$ 8,782,817**		**$ 4,758,260**		**$ 13,541,077**	**$ 13,528,235**

	1% Bradley Burns	County Special	Special Measure	VLF	Franchise Fees	Real Property Transfer Tax	Gas Tax/TDA	Other	Total
				0.170%	$ 18.65	$ 2.95	$ 29.28	$ 5.75	
Acres				of AV	Per Capita	Per Capita	Per Capita	Per Capita	
Tax Rates									
General									
Merced City School Bonds									
Weaver Union School Bonds									
Merced High School Bonds									
Merced College Bonds									
Total									
Population									
Base AV									
Buildout AV-Residential									
Buildout AV-Commercial									
Total Buildout AV									
Incremental AV									
Tax Allocation									
Allocation/AB8 Factor									
County General									$ 1,508,054
County Roads Sales Tax (.25%)		$ 101,266							$ 101,266
County Public Safety Sales Tax (.50%)		$ 202,533							$ 202,533
County Health and Social Services (.50%)		$ 202,533							$ 202,533
City of Merced	$ 405,066		$ 202,533	$ 2,157,377	$ 207,182	$ 32,771	$ 325,270	$ 63,876	$ 6,715,407
County Fire									$ -
Merced Elementary									$ 1,609,392
Weaver Elementary									$ 858,910
Merced Union High School									$ 1,910,485
Merced College									$ 755,577
School Equalization									$ 213,105
School Service									$ 424,123
School Capital Outlay									$ 50,308
Regional Occupational Center									$ 31,394
Mosquito Abatement									$ 159,111
Merced Cemetery									$ 82,411
Merced Irrigation District									$ 212,987
ERAF									$ 1,539,911
Subtotal	**$ 405,066**	**$ 506,332**	**$ 202,533**	**$ 2,157,377**	**$ 207,182**	**$ 32,771**	**$ 325,270**	**$ 63,876**	**$ 16,577,508**
Special Taxes									
Merced High									$ 411,907
Merced College									$ 147,019
Merced City Elementary									$ 45,607
Weaver Union Elementary									$ 246,603
Subtotal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 851,135
Total	**$ 405,066**	**$ 506,332**	**$ 202,533**	**$ 2,157,377**	**$ 207,182**	**$ 32,771**	**$ 325,270**	**$ 63,876**	**$ 17,428,643**