

#TogetherTKPK



# Takoma Park Library Replacement

## ***Design Development, Construction Costs, & Green Building Elements***

*Presented by:*  
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RRMM Architects



# Work Session Topics

Project Timeline  
Funding Sources  
Project Costs  
Design Presentation by RRMM Architects  
Sustainability Design Options  
Next Steps



We have come a  
long way!

## LIBRARY PROJECT TIMELINE 2014-2019

### 2014

- 7 Community Conversations
- 2 public meetings
- Needs Assessment and Visioning Report

### 2015

- Final Report on Interior Space Design
- 2 Presentations to City Council
- Public Meeting #1 on New Concept Design

### 2016

- Public Meeting #2 on New Concept Design
- Images and Video Walkthrough Presentation
- Estimated Construction Costs Presentation

### 2017-2018

- Topographical and utility survey
- Maryland Bond Bill Award
- Hydrologic and Hydraulic Report

### 2019

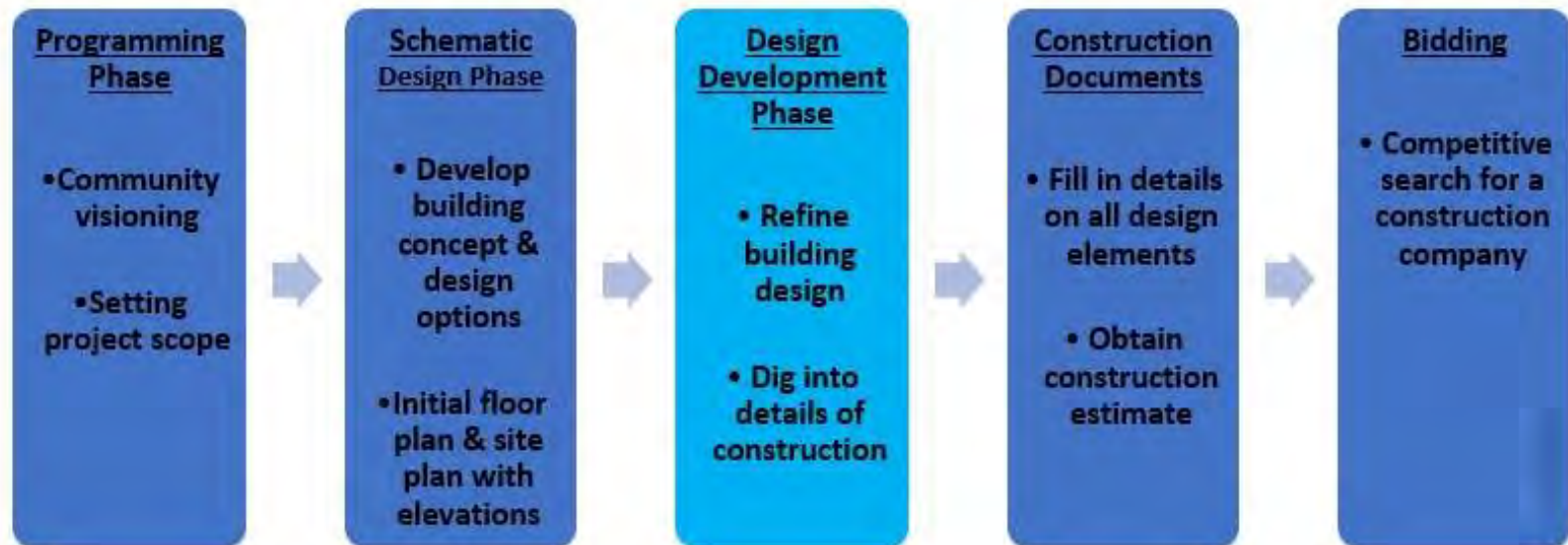
- Floodplain Report
- Design Contract Signed in July

## Project Timeline - 2020

- Council Work Session (March)
- Council Authorization of Continued Design Work (April)
- Public Survey on Exterior (June)
- Presentation of Library Exterior Options (July)
- Presentation to the Committee on the Environment (September)
- Design Development Presentation to Staff (October)
- Design Development Review (November)
  - Design Workshops
  - Construction Cost Report Review
  - Sustainability Manager Review of LEED Scorecard
  - Germantown Library Field Trip
  - Volunteers' Written Comments
  - Staff Written Comments



## *Library Project Phases*



## Construction Estimate as of 10/23

Construction Category	Cost
Library Construction Base Bid	\$ 6,242,653
Lounge and MacLab Construction	\$ 232,813
Recreation Department Renovation	\$ 134,991
Group Bathrooms Renovation	\$ 378,495
<i>Total Construction Costs</i>	<i>\$ 6,988,952</i>
<i>5% Contingency for Change Orders</i>	<i>\$ 349,448</i>
<b>Total Cost</b>	<b>\$ 7,338,399</b>

Note: The base bid includes a 5 percent margin for escalation costs and cost estimator design contingency, separate from the change order contingency listed.



## Funds Available

The state infrastructure bond is our primary funding source, supplemented by cable grants and state grants. State capital grants must have an equal match of City funds. Cable grants can only be used for project components related to public communications, such as media resources and computers.

Funding Source	Budget
Library Infrastructure Bond	\$ 7,000,000
State Capital Grants	\$ 300,000
Cable Capital Grants	\$ 2,500,000
<b>Total Funds Available</b>	<b>\$ 9,800,000</b>
Design Contract	\$ 800,000
Construction Estimate	\$ 7,338,399
<b>Funds Remaining</b>	<b>\$ 1,661,601</b>
<i>Additional Cable Capital Grants Available</i>	<i>\$ 890,000</i>



## Funds Available (2)

- The Library Infrastructure Bond (\$7M) is repaid annually on a 30 year repayment schedule.
- Payments are made out of the General Fund, with \$1,342,880 paid out so far, to continue through 2047.
- In addition to construction costs, **the City will assume “soft” costs** like hiring a construction manager, permit fees, furniture, telecommunications installation, and moving/storage.

Fiscal Years	Principal	Interest	Total
2021	163,500	226,249	389,749
2022	166,500	222,898	389,398
2023	169,000	219,484	388,484
2024	173,500	216,020	389,520
2025	175,500	212,463	387,963
2026	178,500	208,488	386,988
2027-2047	<u>5,528,500</u>	<u>2,636,331</u>	<u>8,164,831</u>
<b>Total</b>	<u><b>\$6,555,000</b></u>	<u><b>\$3,941,933</b></u>	<u><b>\$10,496,933</b></u>





## Vision for a 21<sup>st</sup> Century Library

**“At the dawn of the 21st century, where knowledge is literally power, where it unlocks the gates of opportunity and success, we all have responsibilities...to instill in our children a love of reading so that we can give them a chance to fulfill their dreams.” Barack Obama**

**“The library is an arena of possibility, opening both a window into the soul and a door onto the world.” Rita Dove (Takoma Park Bookmarks)**



# Takoma Park Maryland Library



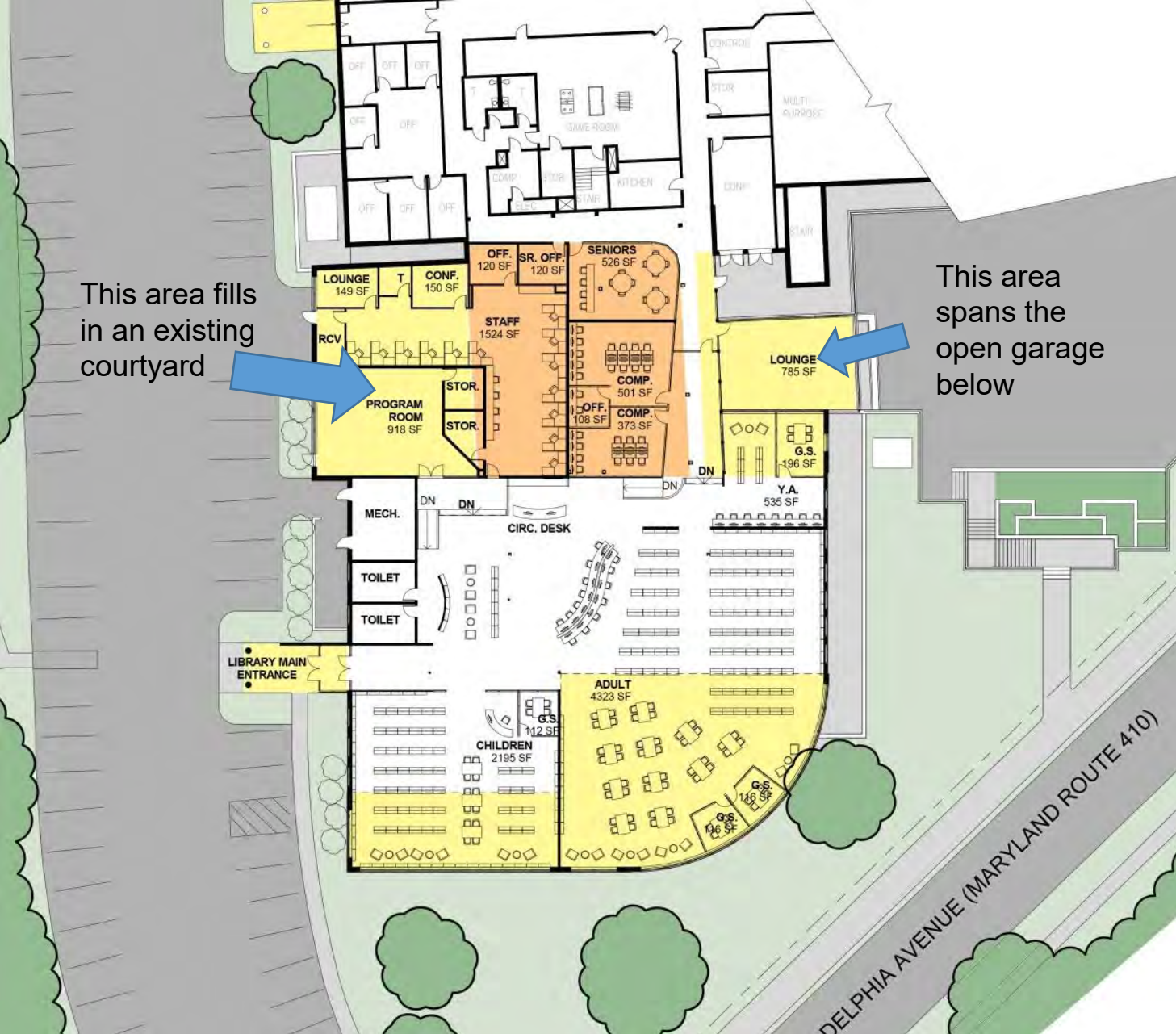
Council Meeting – December 2, 2020







Existing Floor Plan



Design Approach— 19,000 S.F.



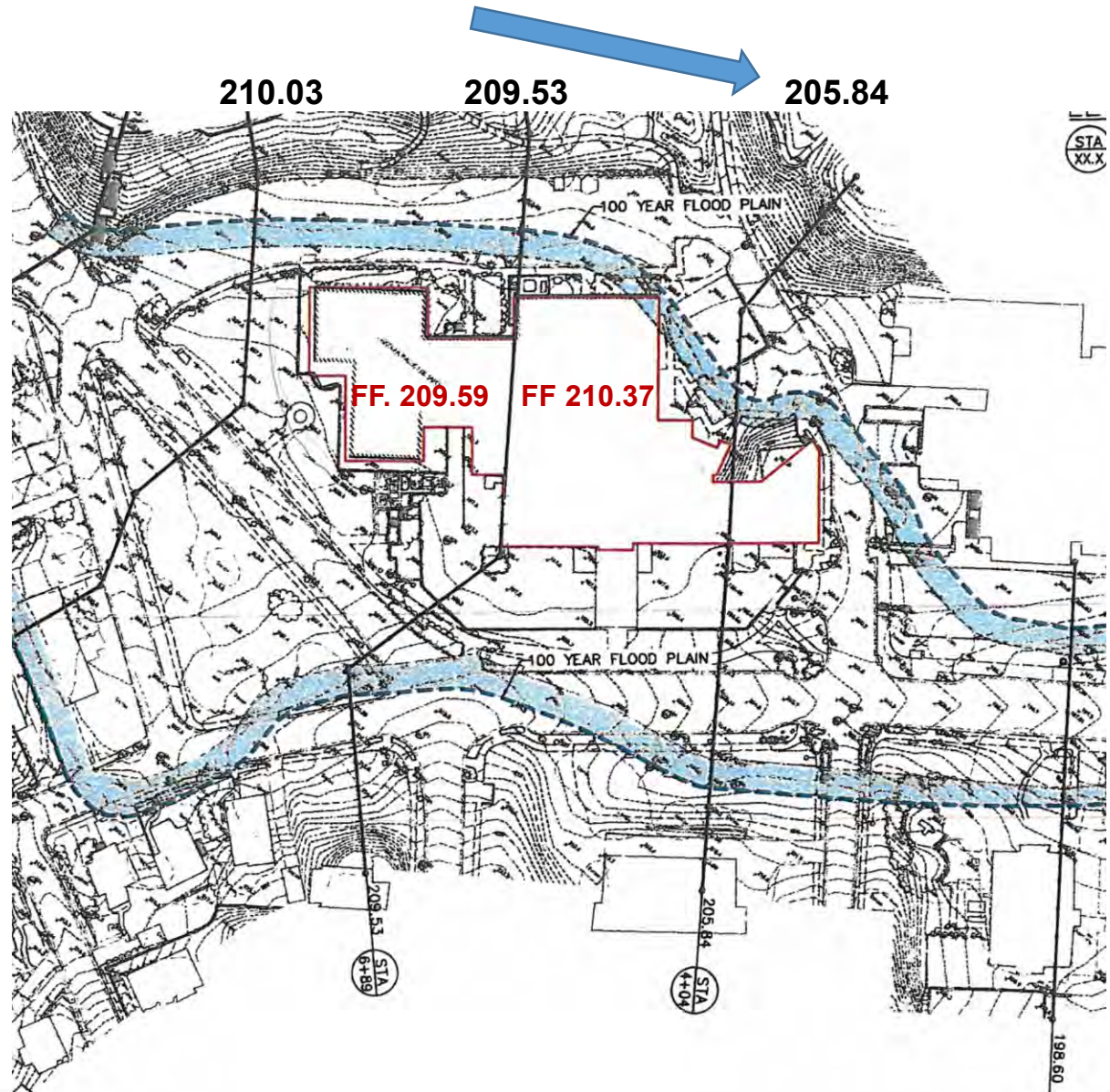
Note : Flood plain elevation is lower as it goes downhill

### Finding

- Study established the current extent and level above sea level of the existing flood plain

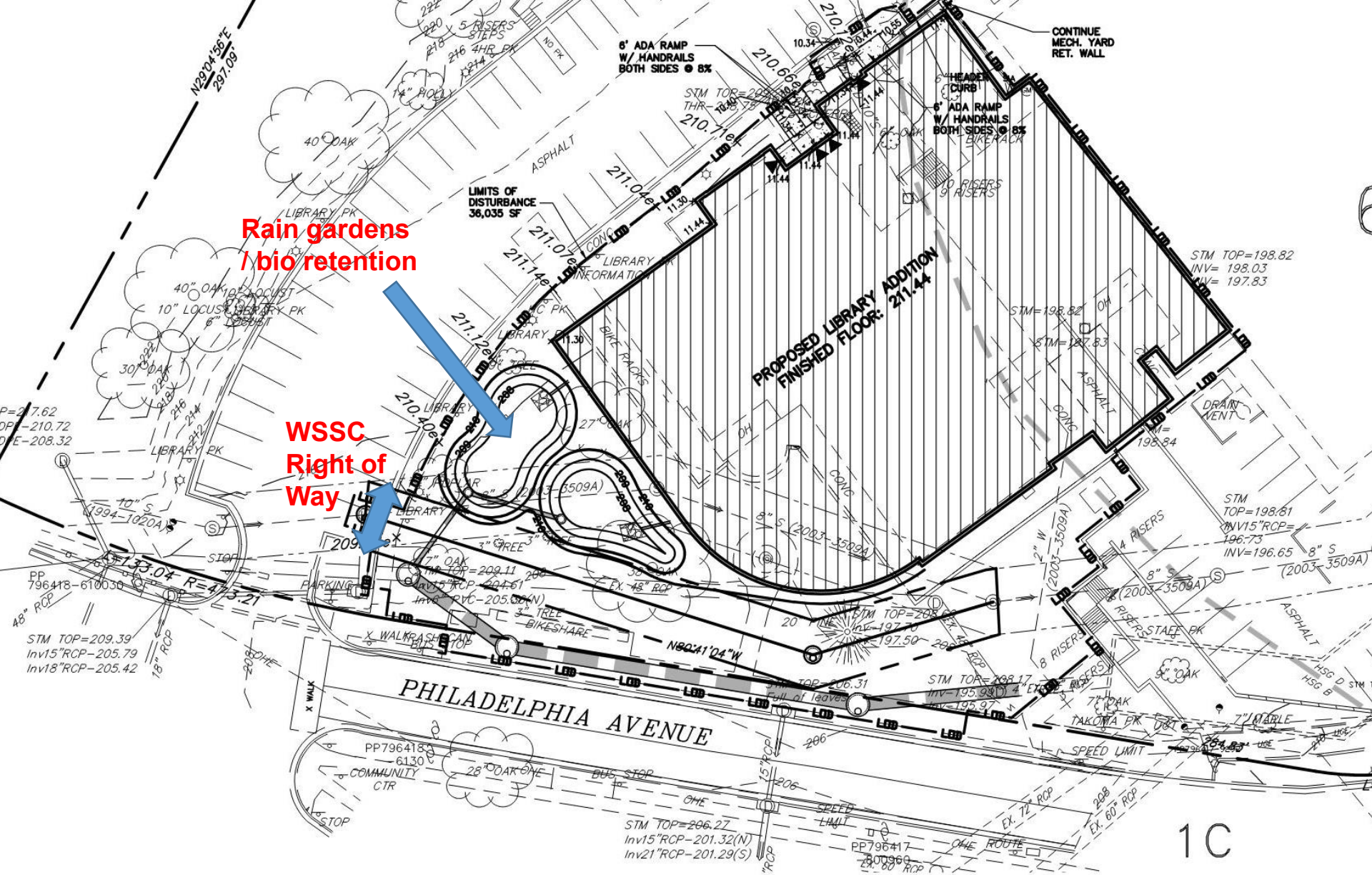
### Next Step

- Determine the impact to the flood plain of an expanded library, ie., does the flood plain rise when 4,400 SF is added to the ground floor?
- Whether or not it does, what is the architectural and engineering response?



## Flood Plain Study





1C

# Stormwater Management - Bioretention



Library Floor Plan





Existing Library – Philadelphia Ave





Existing Library- West Elevation





Existing Mosaic – East Elevation





Photos-Adjacent Community Center





## Exterior Design Concept 2

## **GOAL:**

Construct a cost effective, energy efficient library within the context of Program requirements, the Site, relationship to the existing Community Center, size & shape of the library, first and operational costs, and aesthetic parameters of the project. To achieve a LEED Certification for the project.

## **PROJECT PARAMETERS:**

Site area and site shape available to the library  
Functional relationship to the existing community center  
Functional relationships of spaces within the Library  
Geometry of the library  
Mechanical system selection  
Architectural appearance  
First cost of the library project  
Cost of energy to operate the library

## **CRITERIA TO EVALUATE THE SUCCESS OF THE DESIGN:**

Ability of staff to serve Library Patrons  
Ease of use / Experience for library users  
LEED criteria and Certification including:  
    Design of the exterior envelop- its tightness, insulating quality and architectural devises  
        to respond to the orientation and environment, HVAC, plumbing & Lighting systems,  
        Materials  
Architectural “fit” with the Community Center & the surrounding Community  
Access ( Pedestrian & vehicular) to the Library / Community Center



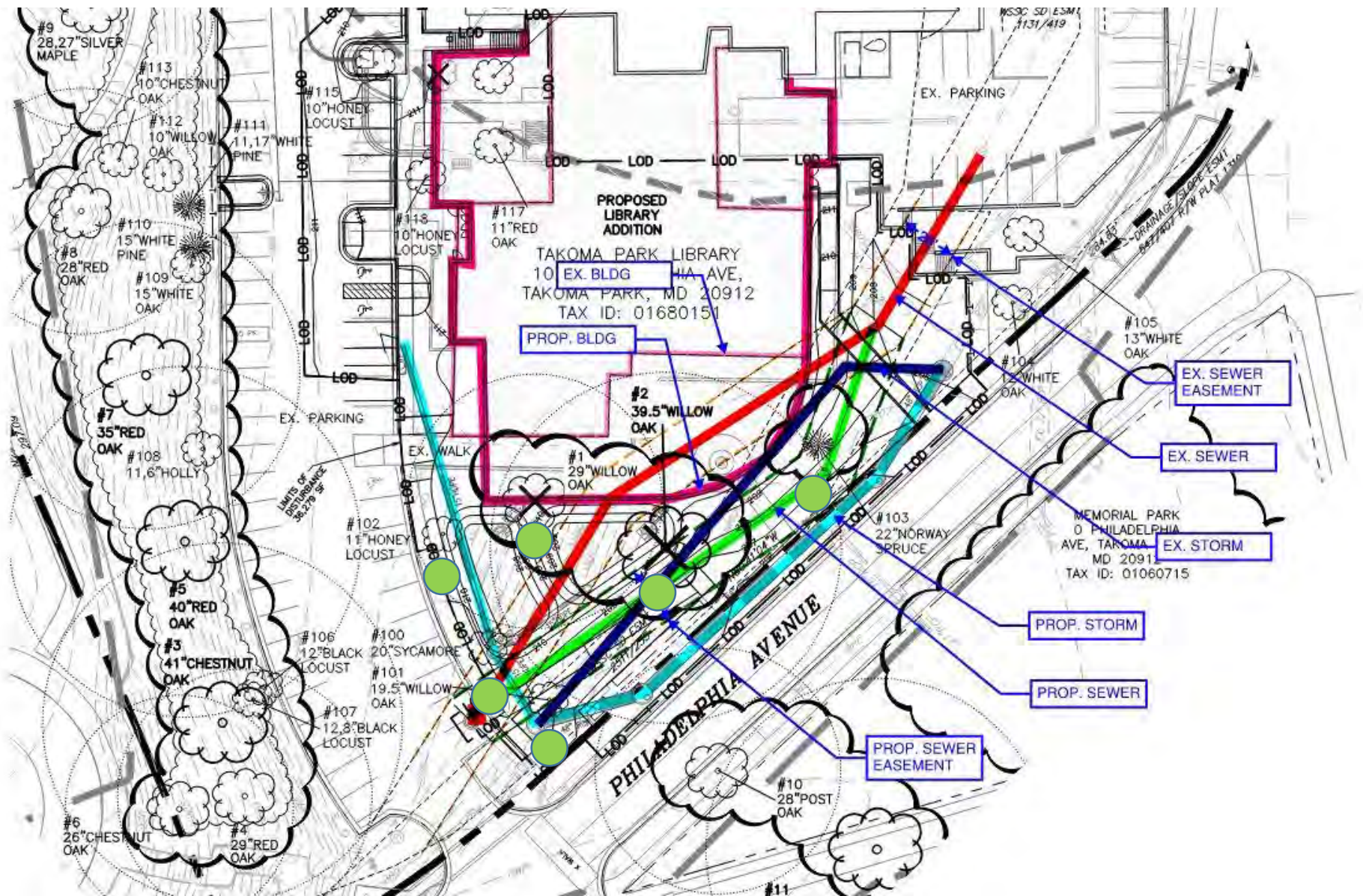
## Site Issues discovered during Design Development

- Added pedestrian walkway and landscaping
- Tree removal and replacement



## Design Development – Site Plan





## Design Development – Trees & Utilities





## Issues discovered during Design Development

Full building code analysis completed...

- Fire Wall
- New Egress stair from garage level

Added structured floor under the library admin

Use of electrical heat in lieu of gas

Window replacement in 2<sup>nd</sup> floor admin offices

Gas meter relocation

## Design Development – Floor Plan





Design Development – Elevations



Design Development – Exterior Renderings







## Design Development – Exterior Renderings







## Design Development – Exterior Renderings







## Design Development – Exterior Renderings







Design Development – Exterior Renderings







Interior Rendering – Circulation Desk





Interior Rendering – Children's Entrance





Interior Rendering – Children's Room





Interior Rendering – Adult Reading Room





Interior Rendering – Adult Reading Room





Interior Rendering – Adult Reading Room





Interior Rendering – Program Room

## Summary of Sustainable Characteristics

- Library must be new because of requirements of the 100 Year Flood Plain
- Library, operationally, needs to be a one story facility
- The site is constrained and expansion will utilize more site area than currently used
- The 7,900 SF expanded footprint will be treated by stormwater management devices
- The roof will be covered with photovoltaics
- Energy efficient HVAC system
  - Reduced fan speed
  - Reduced energy consumption during partial occupancy conditions
  - 19% improvement over baseline building
- Electricity instead of gas– Climate Action Plan zero emissions
- LED Lighting and plug load control
- Significant use of glass for views and natural lighting
  - Sunshading to reduce heat gain
  - Daylight harvesting
- Tight building envelope – better than code requirements
  - Thermal bridging minimized
- Recycled, low VOC materials whenever possible
- No added parking / pedestrian enhancements
- Divert 75% - 95% of construction waste from the landfill
- Water efficient fixtures – Indoor water use reduced by 40% over baseline building
- Native plants. No irrigation
- Bike storage



# LEED / Sustainability

At the moment...

	Yes	Maybe	No	
Integrative Process	1	0	0	
Location & Transportation	4	7	5	
Sustainable Sites	1	8	1	
Water Efficiency	5	2	4	
Energy & Atmosphere	14	11	8	
Materials & Resources	4	7	2	
Indoor Environmental Quality	9	6	1	
Innovation / Regional Priority	7	2	1	
	45	43	22	110 Total
Certified 40-49	Silver 50-59	Gold 60-79	Platinum 80-110	



# Public Feedback & Staff Comments

- **Minor changes to the interior layout**
  - Adjustments within the cost estimate
    - ✓ Window and door additions, storage space
    - ✓ Product choices and interior finishes
    - ✓ COVID-19 Enhancements
- **Energy Efficiency Improvements**
  - What late design stage enhancements can be made to make the building more energy efficient?
    - ✓ How close can we get to a Net Zero Building?
- **Environmental Sustainability**
  - Is LEED Gold attainable?





## Green Building Elements - Costly Redesigns

Environmental Options	Base Cost*	Benefit
Switch to Variable Refrigerant Flow or Geothermal HVAC Systems	\$380K-\$740K	Lower energy consumption than proposed system
Radiant Heating and Cooling	\$ 535,154	Lower energy consumption than proposed system
Utility Relocation under Philadelphia Avenue	\$ 500,000	Increase open space outside building; expand stormwater management area
Greywater system	\$ 250,000	Reclaimed water to reduce water use
Green Roof	\$ 200,000	Heat island reduction and stormwater management

\* Architectural design costs will increase and project timeline would be extended.



# Green Building Elements - Recommended Design Improvements

Environmental Options	Cost	Benefit
Enhanced Systems Commissioning	\$ 50,000	Identify mechanical system improvements within proposed design
Thermal Envelope Commissioning	\$ 20,000	Evaluate building envelope for possible improvements
Whole Building Life Cycle Assessment	\$ 11,000	Obtain recommendations on building impact reduction
RTU Unit Upgrade	\$ 35,000	Improve VAV system with more efficient units
Triple Pane Glazing	\$ 81,324	Increase energy efficiency by improving window insulation
Energy Efficiency Optimization	\$ 10,000	Investigate local expert suggestions
<b>TOTAL COST</b>	<b>\$ 207,324</b>	





# Budget Impact of Green Building Design Adjustments & Soft Costs

<i><b>Funding Source</b></i>	<i><b>Budget</b></i>
<b>Funds Available</b>	<b>\$ 9,800,000</b>
Design Contract	\$ 800,000
Construction Estimate	\$ 7,338,399
Green Design Improvements	\$ 207,324
Energy Efficiency Adjustments	\$ 200,000
Telecommunications Installation	\$ 76,000
Furniture & Permit Fees	\$ 400,000
Moving and Storage	\$ 100,000
Construction Manager	\$ 180,000
<b>Total Cost</b>	<b>\$ 9,301,723</b>
<b>Funds Remaining</b>	<b>\$ 498,277</b>
<i>Additional Cable Capital Grants Available</i>	<i>\$ 890,000</i>



## Schedule...

12/9/20	Notice to proceed into CD phase
3/31/21	CD phase complete
5/31/21	Permit issued
7/15/21	Bids received
8/1/21	Construction start
2/1/23	Construction complete





## Next Steps

- **Council Vote on December 9<sup>th</sup>  
Resolution to advance to Construction Documents Phase & Bidding Preparation**
- **Have staff proceed with final design adjustments; may require moderate cost increases to improve energy efficiency**
- **Have staff continue work on retaining a construction manager, confirming a temporary location for the library, and hiring a new Library Director**
- **Council to review final cost information during bid review stage**

Questions?

Thank you

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