Calgary's Downtown Fire Service Strategy

Innovative Application of Value Management

David Wilson, P.Eng., CVS-Life, FSAVE, CPF

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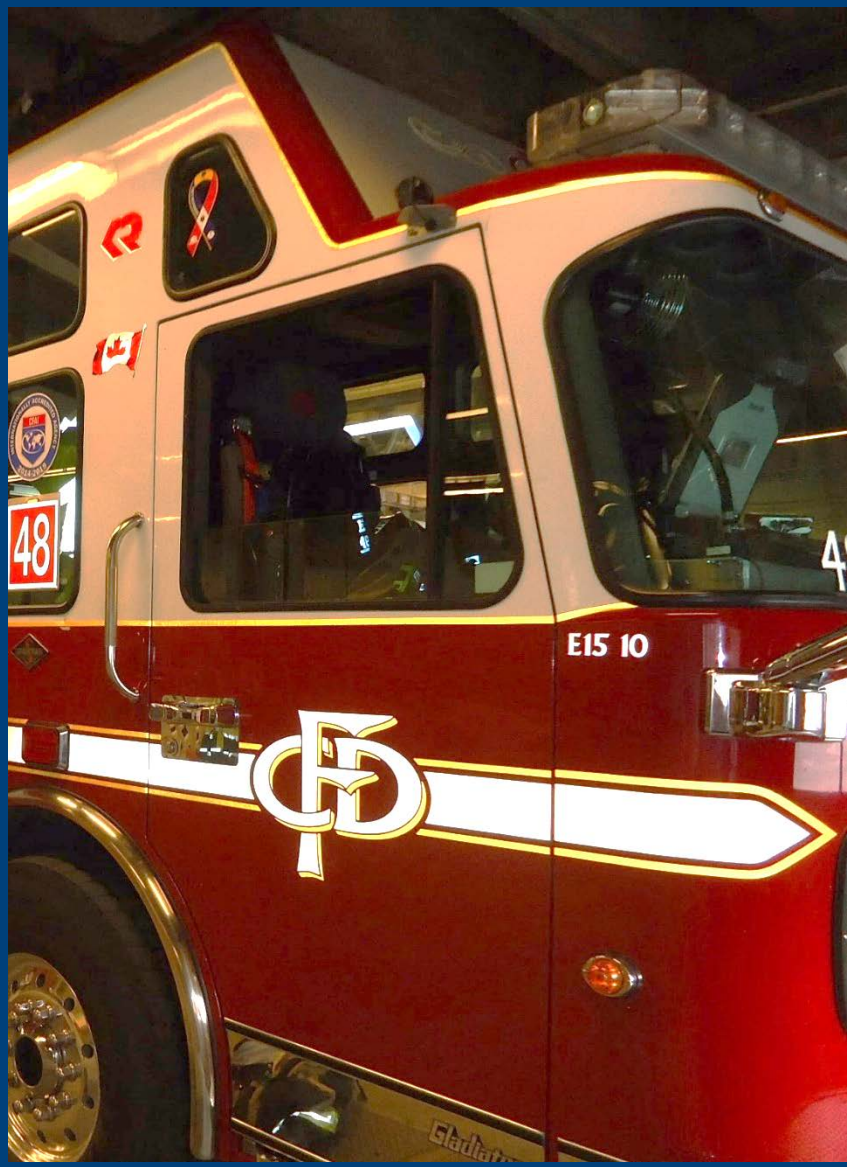
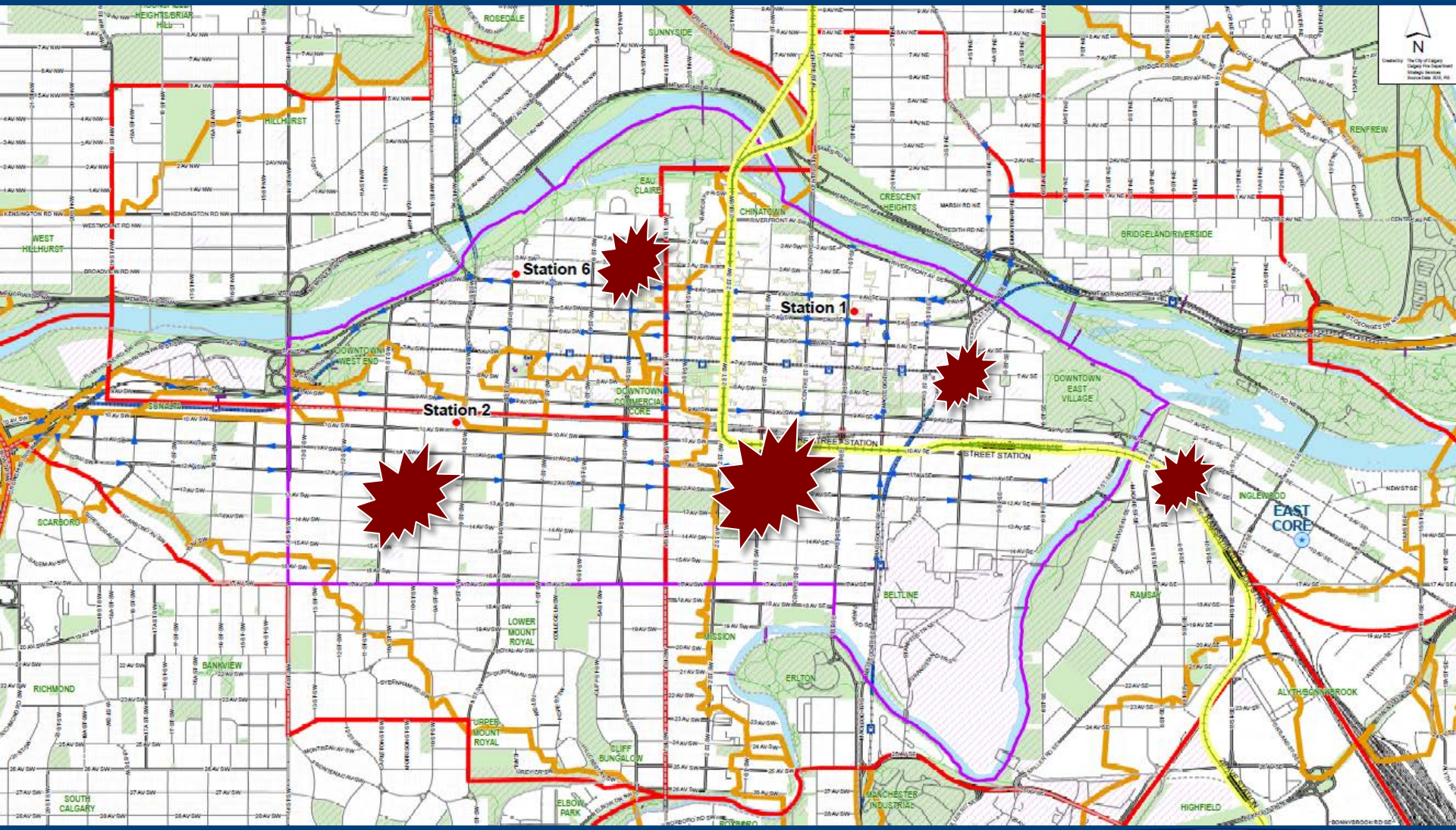
Today's Presentation…

- **Three Aspects:**
  - **The project**
  - **The process**
  - **The path-forward**

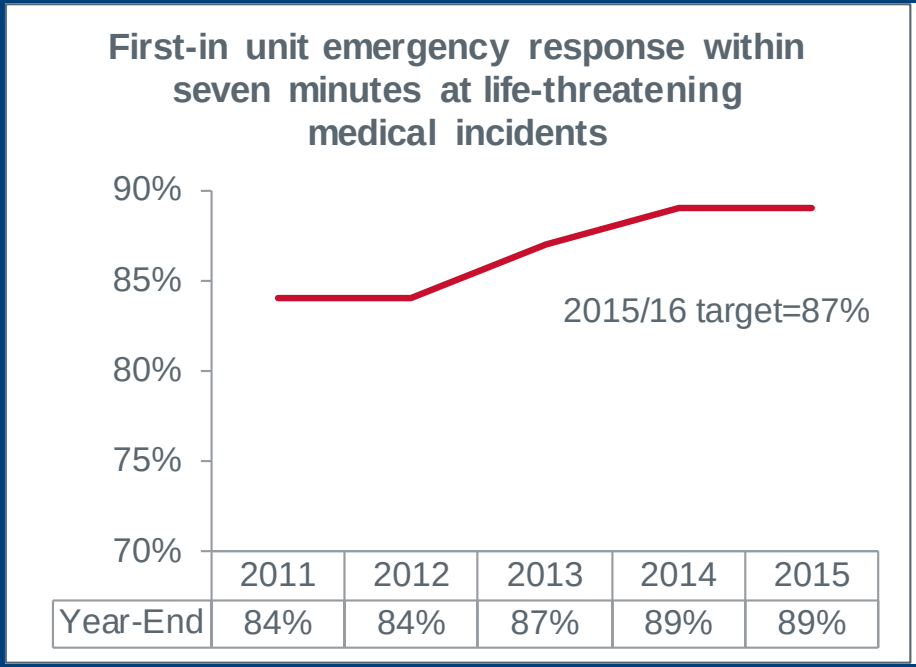


When We Think of Calgary…

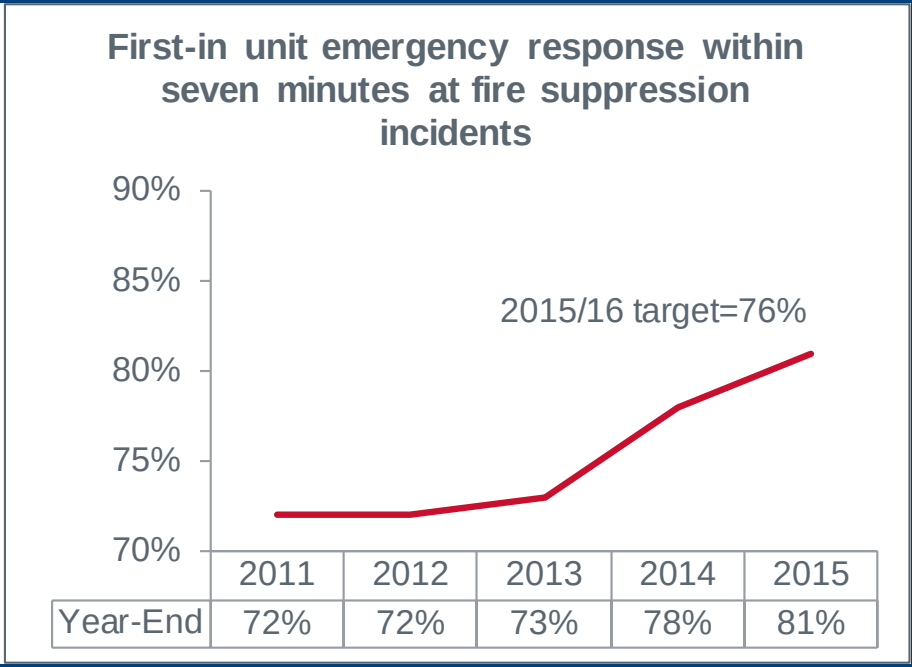
When CFD Thinks on Calgary…



Measuring Success…

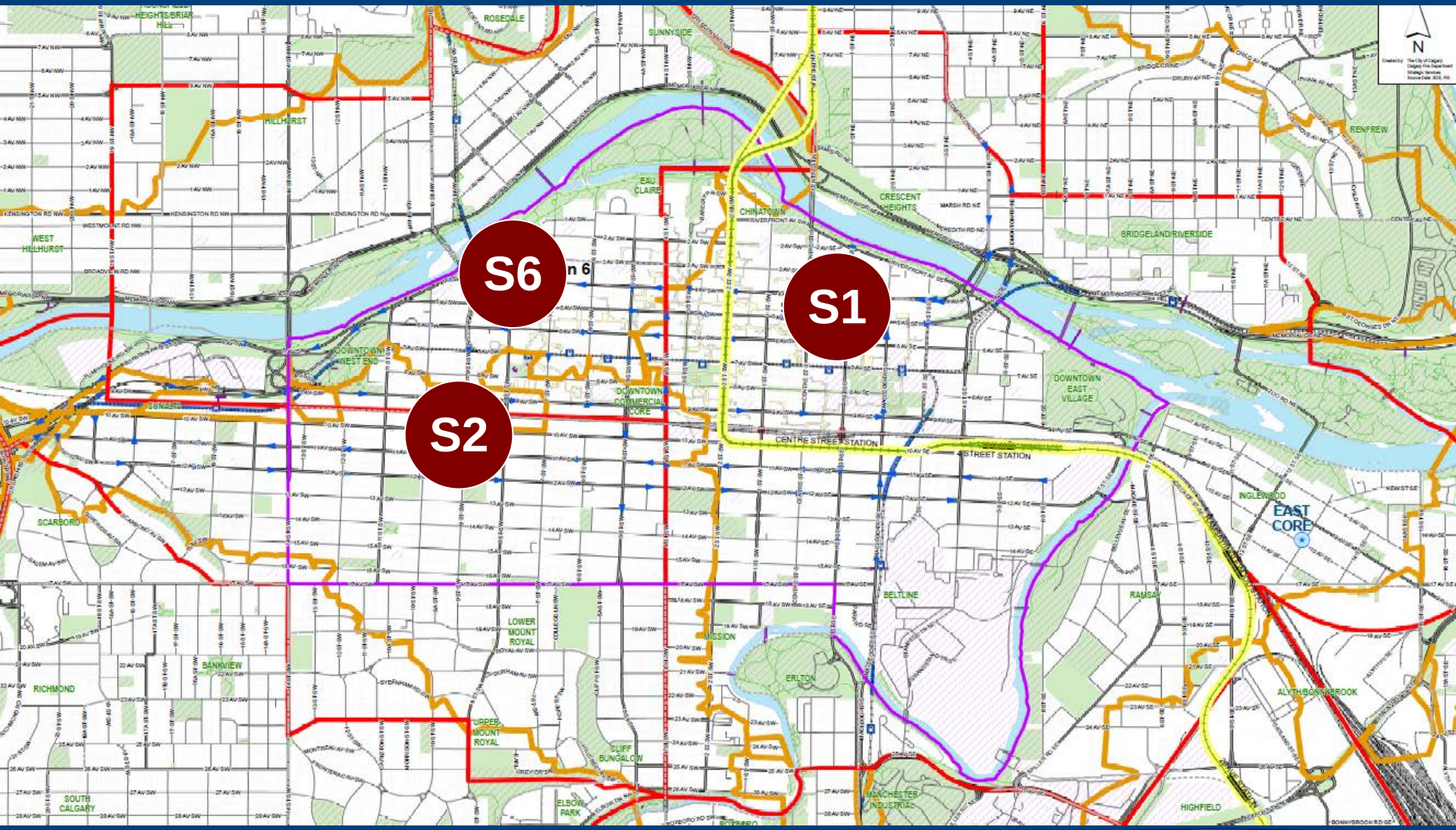


	2011	2012	2013	2014	2015
Year-End	84%	84%	87%	89%	89%



	2011	2012	2013	2014	2015
Year-End	72%	72%	73%	78%	81%

Downtown Fire Stations



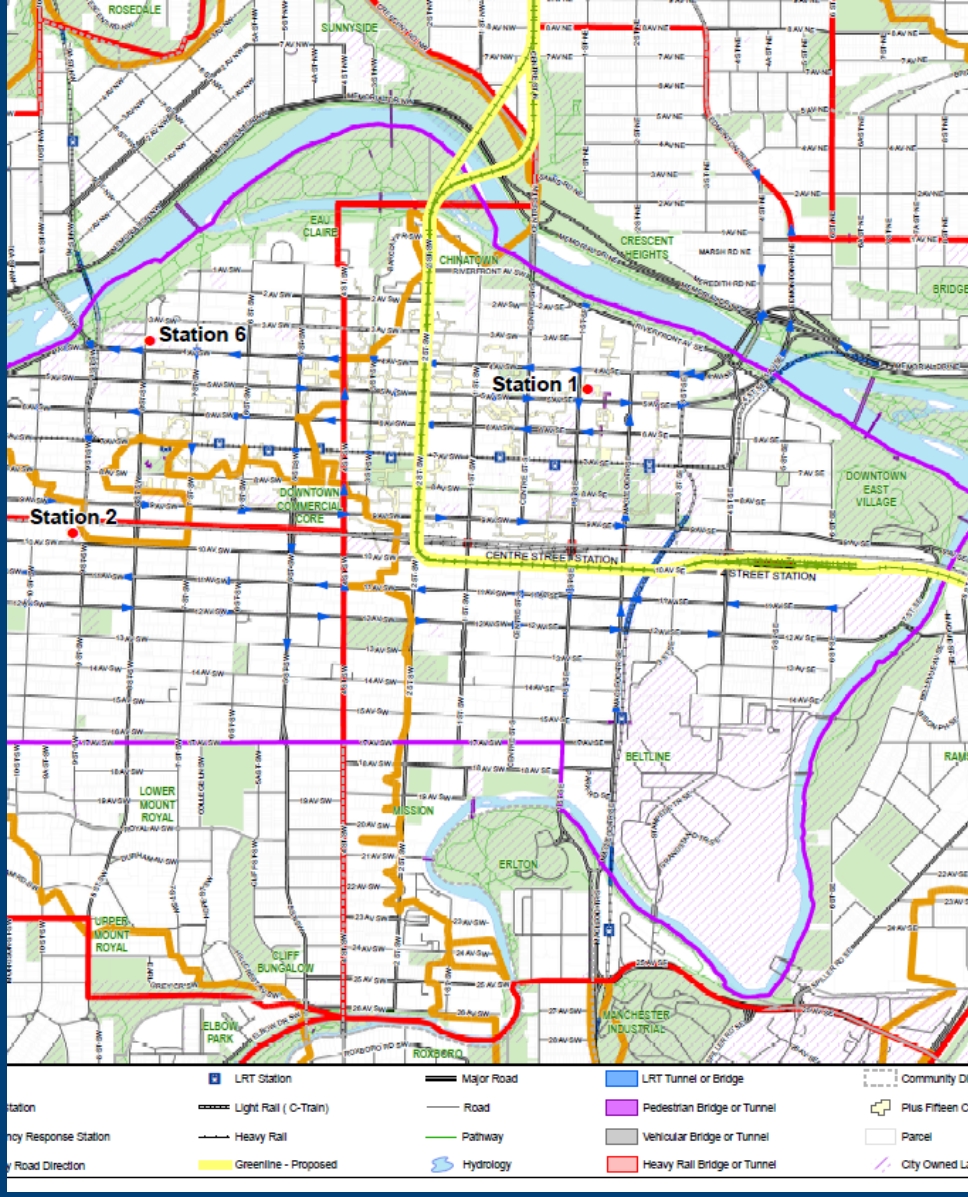
Downtown Fire Stations

- **CFD's 10 and 30 year capital plan**
  - replace/renew Stations 1 and 2 (2019-2022)
  - new station at Inglewood (East Core) needed?
  - cost estimate $55M

- **Need robust and defensible analysis to support business case for capital request for downtown core**

Key Project Goals

- **Address degrading fire hall facilities**
- **Identify potential opportunities to support business case**

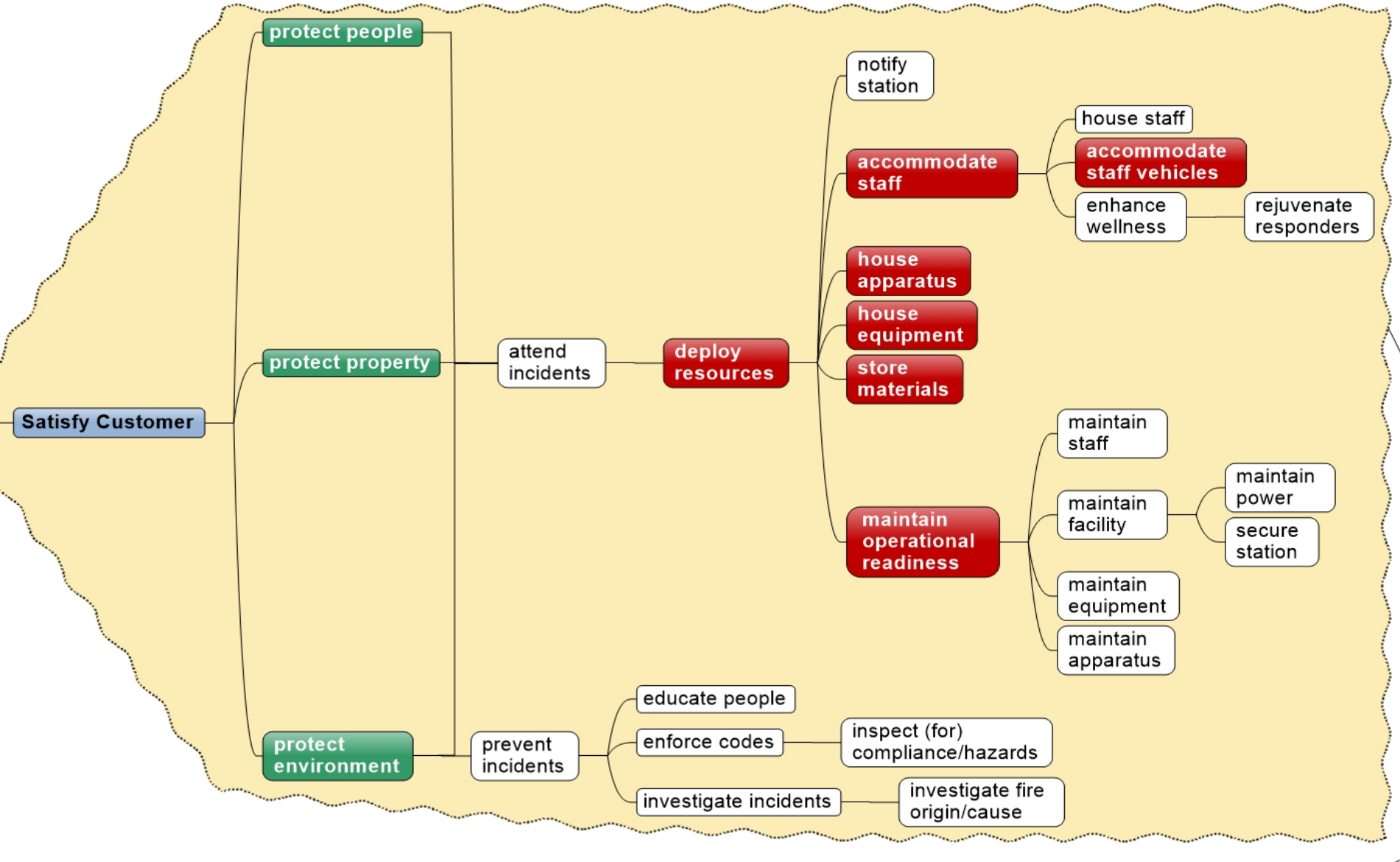


What's the Focus?

- **CFD**
  - Wanted to undertake a VM study on fire stations
    - Should we renovate?
    - Should we replace?
    - When do we build a new station (East Core)?

- **The obvious first question?**
  - Shouldn't we focus on service strategy first?

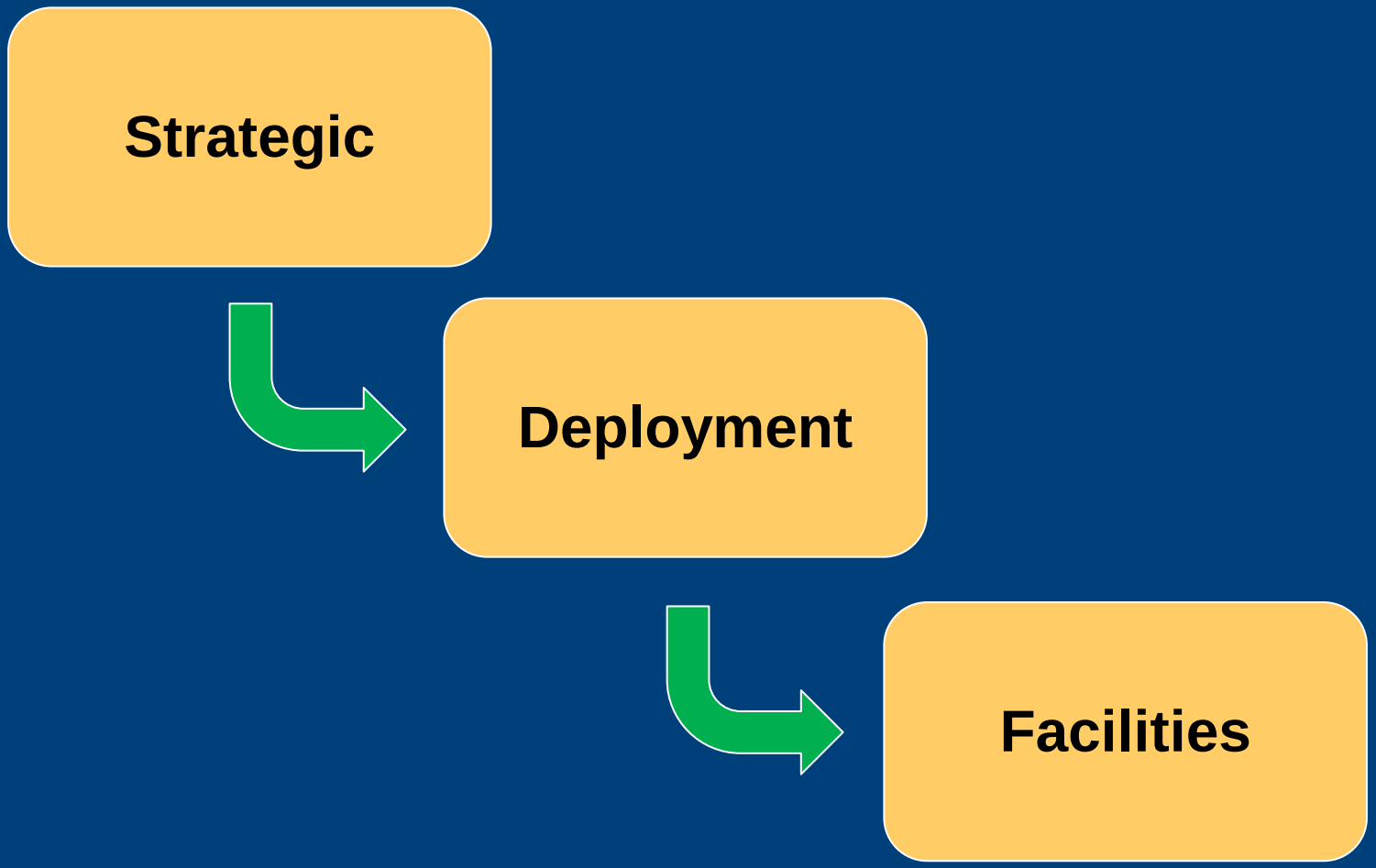
Function Analysis



Creativity/Evaluation/Development

- **Ideas**
  - 200 Generated
  - 70 Shortlisted
  - 27 Developed

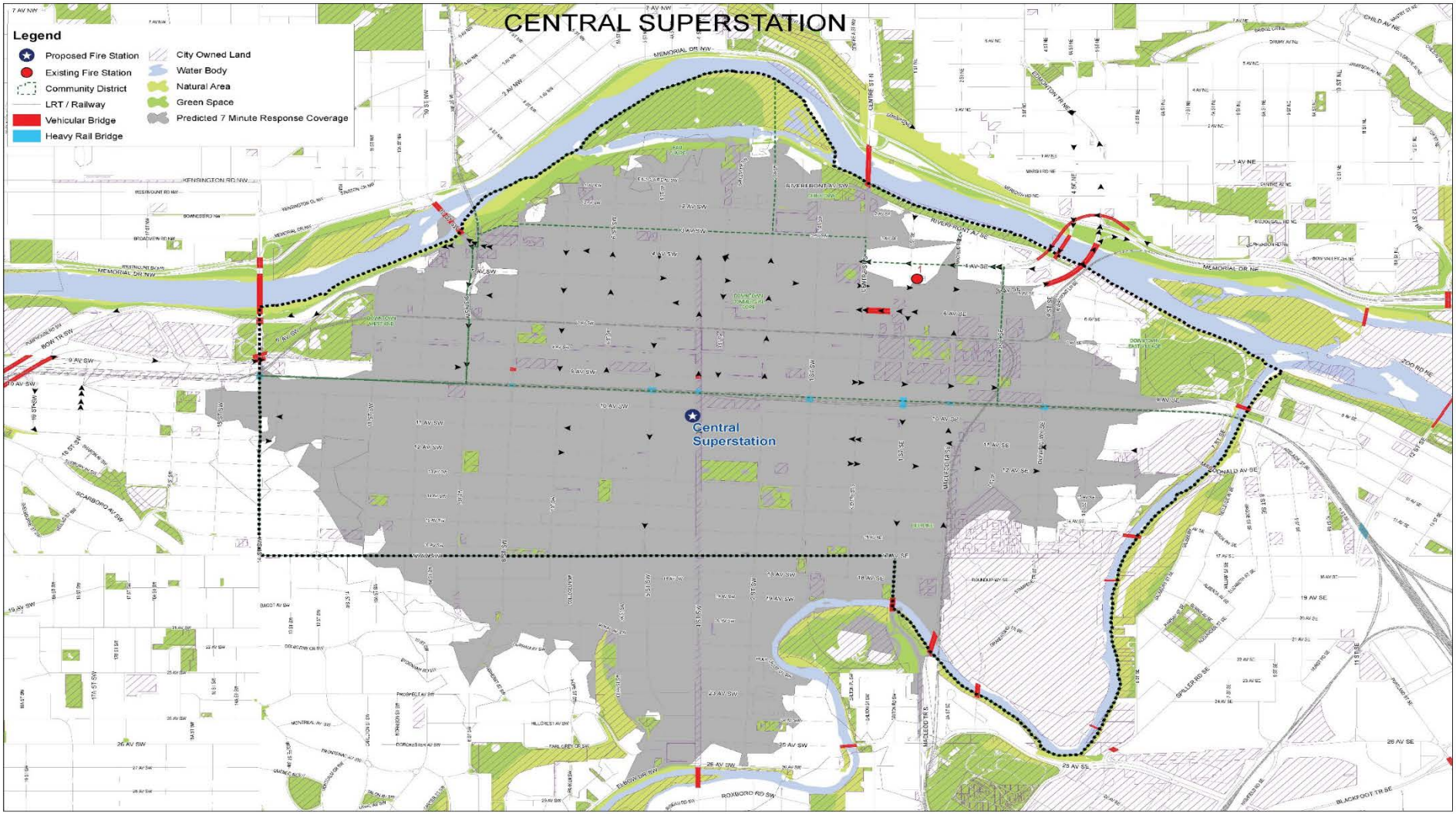
Value Opportunities - Layered



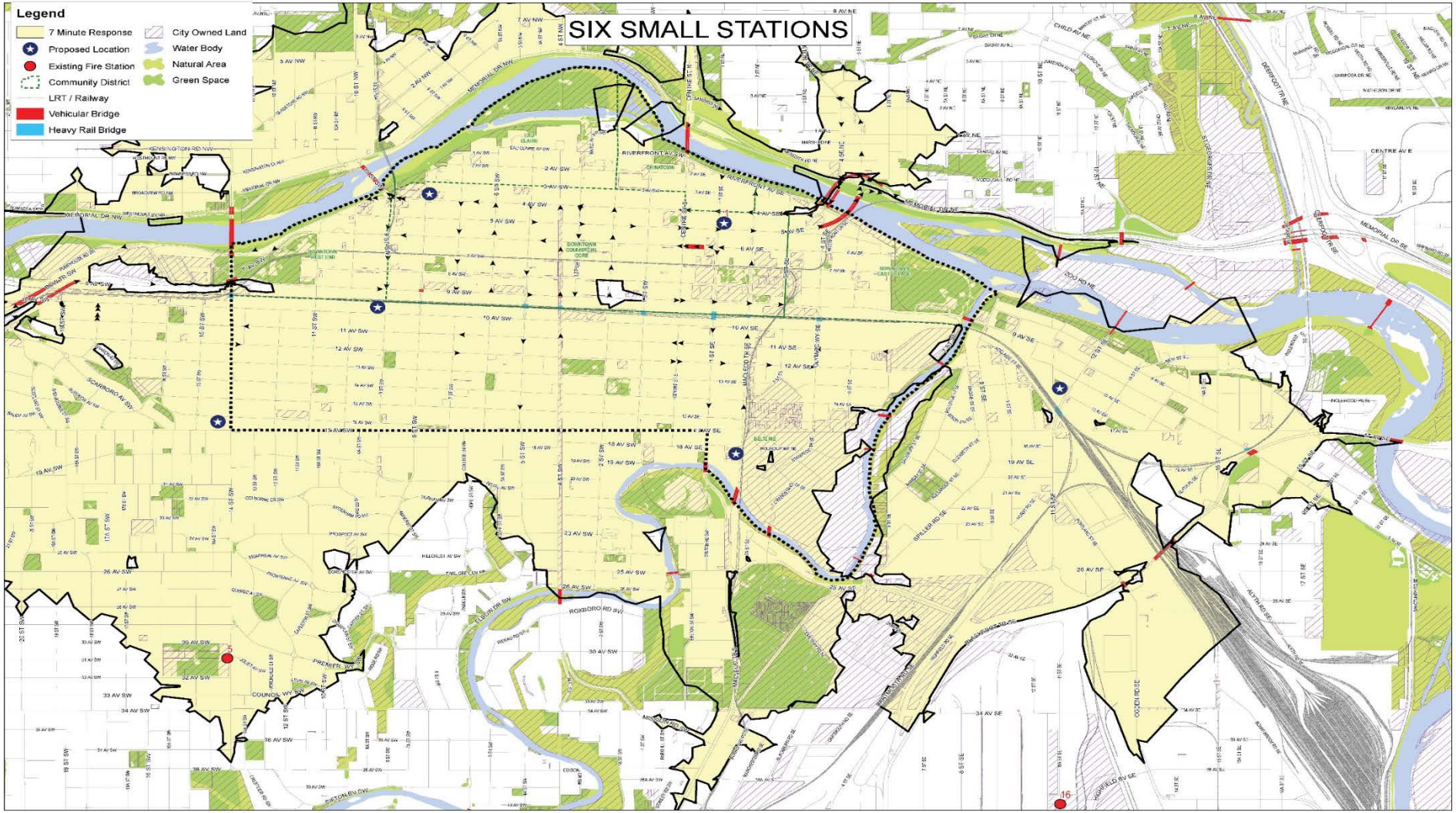
Strategic Opportunities

- **Staff Parking Strategy for Downtown Stations**
- **Equipment Strategy for on-site storage**
- **Post-disaster building required?**
- **Flood resilient design**
- **Partnering/integration with CFD facilities**

Deployment - Centralized



Deployment - Decentralized



Facilities - Baseline

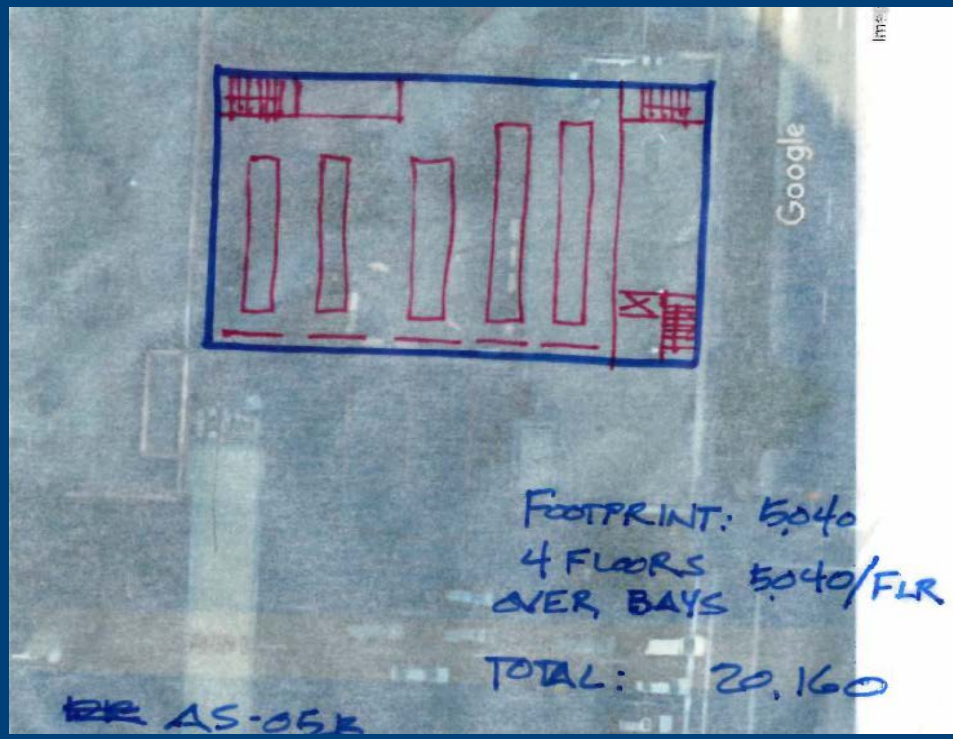
- **Renovate Station 1 to LEED silver**
- **Rebuild Station 2 to LEED gold, add another bay**
- **Maintain Station 6**

Facilities – Renovate/Expand Station 1

- **Add 2 stories above bay, LEED silver for existing, LEED gold for new**
- **+39 % building size vs existing**
- **Flexible space**
- **27,038 sq ft**

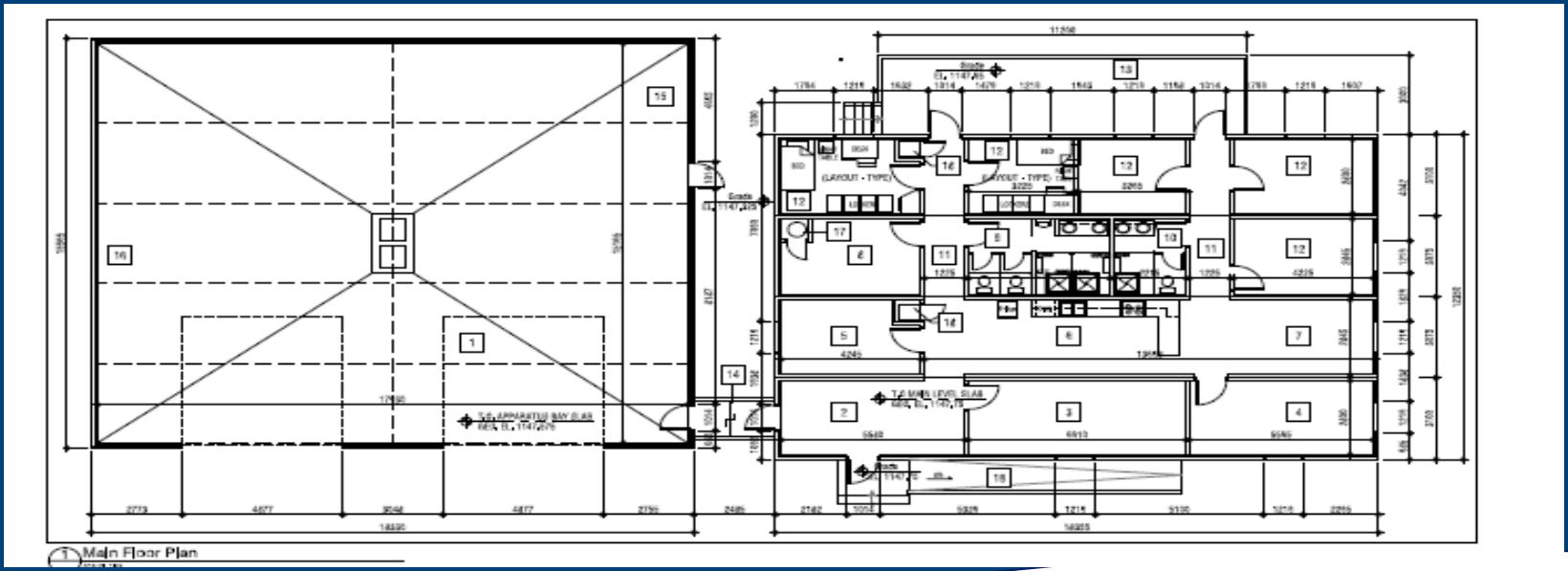
Facilities – New Larger Station 1

- **4-storey building, LEED gold, 5 bays, higher bay ceiling, flex space/ programming**
- **+30 % building size vs existing**
- **25,200 sq ft**



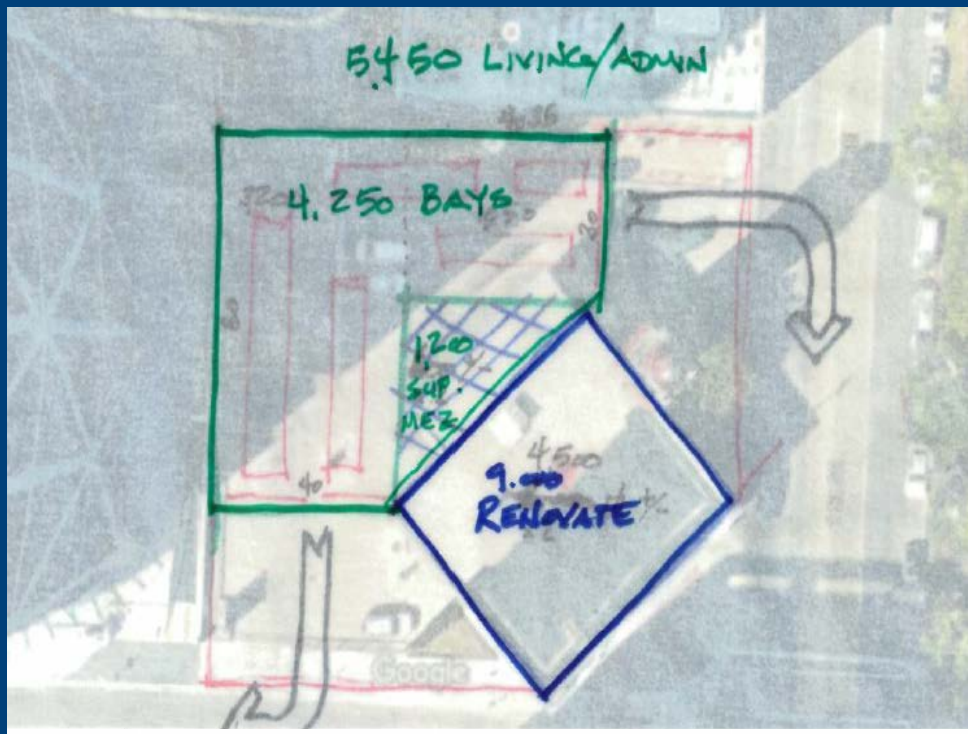
Facilities – Satellite Stations

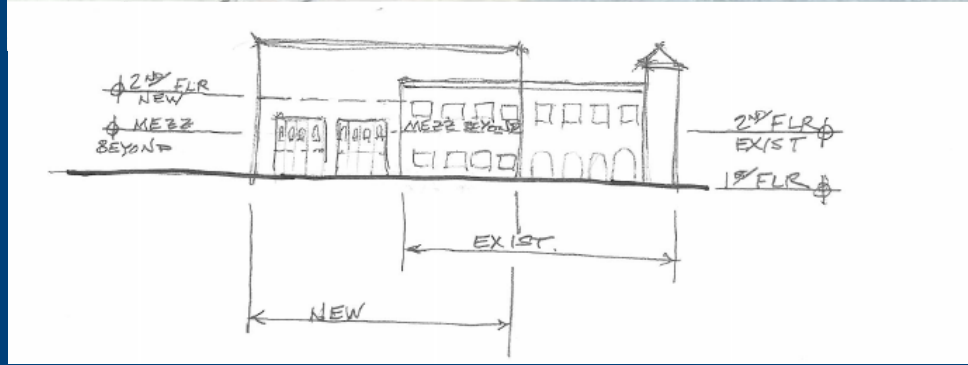
- **6,000 sq ft facility, 2-bay**
- **Includes dorms, showers, office, kitchen, fitness, training room, patio**
- **Flexible station option**



Facilities – Historic Station 1 Upgrade

- **LEED silver existing, LEED gold new**
- **Equivalent of 4 bays (5 trucks) and addition of 2 stories on top of new bay area**



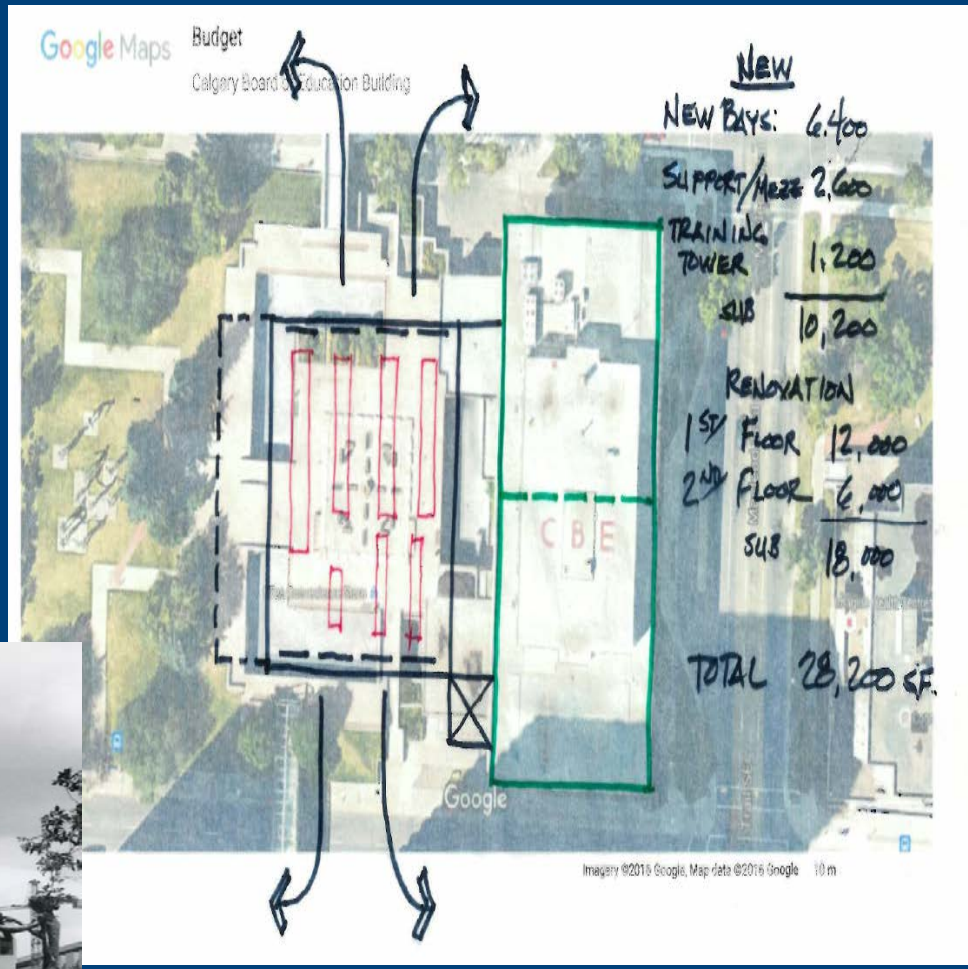


Facilities – Historic Station 2 Upgrade

- **Renovate LEED silver, new construction LEED gold**
- **Equivalent of 4 bays (5 trucks)**
- **19,600 sq ft building space**

Facilities – Repurpose CBE Building

- **LEED silver existing, LEED gold new**
- **4 bays, flex space**
- **28,200 sq ft**



FACT – Functional Attributes…

The functional performance attributes for the project are presented in **Exhibit 2.4.**

Exhibit 2.4 – Functional Performance Attributes

Functional Attribute	Performance Definition	Aspects to Consider
Maintain Operational Readiness	• a measure of the operational readiness of the Fire Department in the downtown core over time	• type, number, and location of apparatus and equipment needed • skillsets, number, and location of staff needed
Meet Customer Expectations	• a measure of how the Fire Department meets the expectations of its downtown customers over time	• response time • range of services provided • ability of the Fire Department to outreach and engage community • integration and role of Fire Department infrastructure assets within the community
Meet Staff Expectations	• a measure of how the Fire Department meets the expectations of its downtown staff over time	• working envir • amenities avail • opportunities t skillsets, trainir
Maintain Flexibility for the Future	• a measure of how the Fire Department can adapt to changing service needs over time	• changes in risk downtown cor • changing demo • changing dema • evolving techn
Align (with) Corporate Vision	• a measure of how the Fire Department's infrastructure meets corporate objectives	• corporate bran • corporate visio • opportunities t departments/o • policies • city-b ding ir

Exhibit 2.6 - Performance Evaluation

Functional Performance Attributes/Alternatives		Baseline		VE Alt. 1		VE Alt. 2		VE Alt. 3		VE Alt. 4		VE Alt. F	
Description													
	Criteria	Wt.	Score	Total	Score	Total	Score	Total	Score	Total	Score	Total	Score	Total
1	Operational Readiness	32	5	160	5	160	5	160	7	224	5	160	7	224
2	Customer Expectations	25	5	125	5	125	5	125	7	175	7	175	8	200
3	Staff Expectations	15	5	75	7	105	8	120	4	60	7	105	4	60
4	Future Adaptability	17	5	85	5	85	7	119	7	119	6	102	8	136
5	Corporate Alignment	11	5	55	5	55	6	66	8	88	7	77	8	88
Total		100		500		530		590		666		619		708
Rank (Best Functional Performance = 1)				9		8		6		2		5		1

Functional Performance Attributes/Alternatives		VE Alt. 6		VE Alt. 7		VE Alt. 8		VE Alt. 9		VE Alt. 10		VE Alt. 11	
Description													
	Criteria	Wt.	Score	Total	Score	Total	Score	Total	Score	Total	Score	Total	Score	Total
1	Operational Readiness	32	3	96	6	192	0	0	0	0	6	192	7	224
2	Customer Expectations	25	4	100	6	150	0	0	0	0	5	125	7	175
3	Staff Expectations	15	6	90	4	60	4	60	4	60	4	60	3	45
4	Future Adaptability	17	7	119	8	136	3	51	4	68	6	102	8	136
5	Corporate Alignment	11	7	77	8	88	6	66	6	66	6	66	7	77
Total	0	100		482		626		177		194		545		657
Rank (Best Functional Performance = 1)				10		4		12		11		7		3

The rating definitions are presented in **Exhibit 2.7.**

Exhibit 2.7 – Rating Definitions

Rating	Rating Definition
	Alternative cannot be adequately ordered

FACT – Functional Attributes…

Exhibit 2.8 - Cost Evaluation

Resource Component/Alternatives	Baseline	VE Alt. 1	VE Alt. 2	VE Alt. 3	VE Alt. 4	VE Alt. 5
Description						
Baseline Capital Cost	$20,992,000	$20,992,000	$20,992,000	$20,992,000	$20,992,000	$20,992,000
Adjustment to Capital Cost	$0	$4,607,000	$6,185,000	-$7,682,000	-$1,577,000	-$674,000
Total Capital Cost	$20,992,000	$25,599,000	$26,177,000	$13,310,000	$19,416,000	$20,318,000
Baseline Future Cost (Incl. asset ownership)	$29,500,000	$29,500,000	$29,500,000	$29,500,000	$29,500,000	$29,500,000
Adjustment to Future Cost	$0	$365,000	$257,000	-$18,420,000	-$5,971,000	-$18,036,000
Total Future Cost	$29,500,000	$29,865,000	$29,757,000	$11,080,000	$23,529,000	$11,464,000
Total Life Cycle Cost (Estimated Rounded NPV)	$50,492,000	$55,464,000	$55,934,000	$24,390,000	$43,945,000	$31,782,000
Rank (Lowest Resources Requirement = 1)	9	10	12	1	7	3

Resource Component/Alternatives	VE Alt. 6	VE Alt. 7	VE Alt. 8	VE Alt. 9	VE Alt. 10	VE Alt. 11
Description						
Baseline Capital Cost	$20,992,000	$20,992,000	$20,992,000	$20,992,000	$20,992,000	$20,992,000
Adjustment to Capital Cost	-$5,972,000	$1,101,000	-$10,650,000	-$4,707,000	-$674,000	$4,170,000
Total Capital Cost	$15,020,000	$22,093,000	$10,342,000	$16,285,000	$20,318,000	$25,162,000
Baseline Future Cost (Incl. asset ownership)	$29,500,000	$29,500,000	$29,500,000			
Adjustment to Future Cost	-$5,939,000	-$18,014,000	$17,695,000			
Total Future Cost	$23,561,000	$11,486,000	$47,195,000			
Total Life Cycle Cost (Estimated Rounded NPV)	$38,581,000	$33,579,000	$57,537,000			
Rank (Lowest Resources Requirement = 1)	6	3	11			

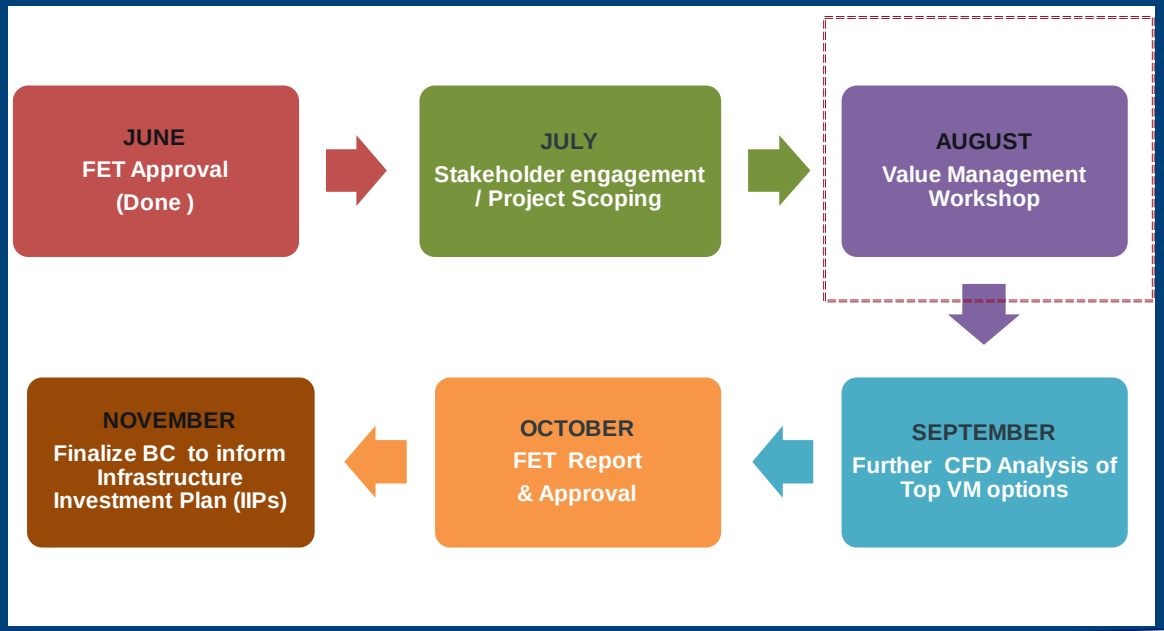
Exhibit 2.9 - Best-Value Evaluation

Best Value/Alternatives	Baseline	VE Alt. 1	VE Alt. 2	VE Alt. 3	VE Alt. 4	VE Alt. 5
Description						
Performance	500	530	580	668	619	709
Total Resources (Life Cycle Cost)	$50,492,000	$55,464,000	$55,934,000	$24,390,000	$43,945,000	$31,782,000
Value Ratio V = P/R	9.90	9.55	10.01	27.31	14.41	22.28
Value Improvement (over Baseline)	0%	-4%	1%	176%	46%	125%
Best Value Rank (Most Preferred = 1)	9	10	8	1	5	3

Best Value/Alternatives	VE Alt. 6	VE Alt. 7	VE Alt. 8	VE Alt. 9	VE Alt. 10	VE Alt. 11
Description						
Performance	482	636	177	194	648	687
Total Resources (Life Cycle Cost)	$38,581,000	$33,579,000	$57,720,000	$42,917,000	$37,722,000	$40,662,000
Value Ratio V = P/R	12.49	18.94	3.07	4.52	14.44	13.58
Value Improvement (over Baseline)	26%	89%	-69%	-54%	46%	36%
Best Value Rank (Most Preferred = 1)	7	3	12	11	4	6

Epilogue…

- **3 shortlisted alternatives carried forward**
- **CFD developed business case**
- **East Core lands released**



Tips, Tricks, and Traps

- **Start with the right question**
- **Maintain flexibility to alter job plan**
- **Avoid science experiments!**
- **Encourage enthusiasm**

Closing…

- **Three Aspects:**
  - **The project**
  - **The process**
  - **The path-forward**

Contact

David C. Wilson, P.Eng., CVS-Life, FSAVE, CPF

President
NCE Value Engineers Inc.

david.wilson@nceve.com