

Fire Department Policy & Budget



Council Presentation April 27, 2016

Policy Topics



- ❖ **Strategic Challenges & Plans**
- ❖ **Station & Apparatus Replacement**
- ❖ **Call Volume and Response Times**
- ❖ **Station 19 Expansion**
- ❖ **Rail Traffic & Oil Tankers**
- ❖ **Lilydale**



Strategic Challenges & Strategic Plans



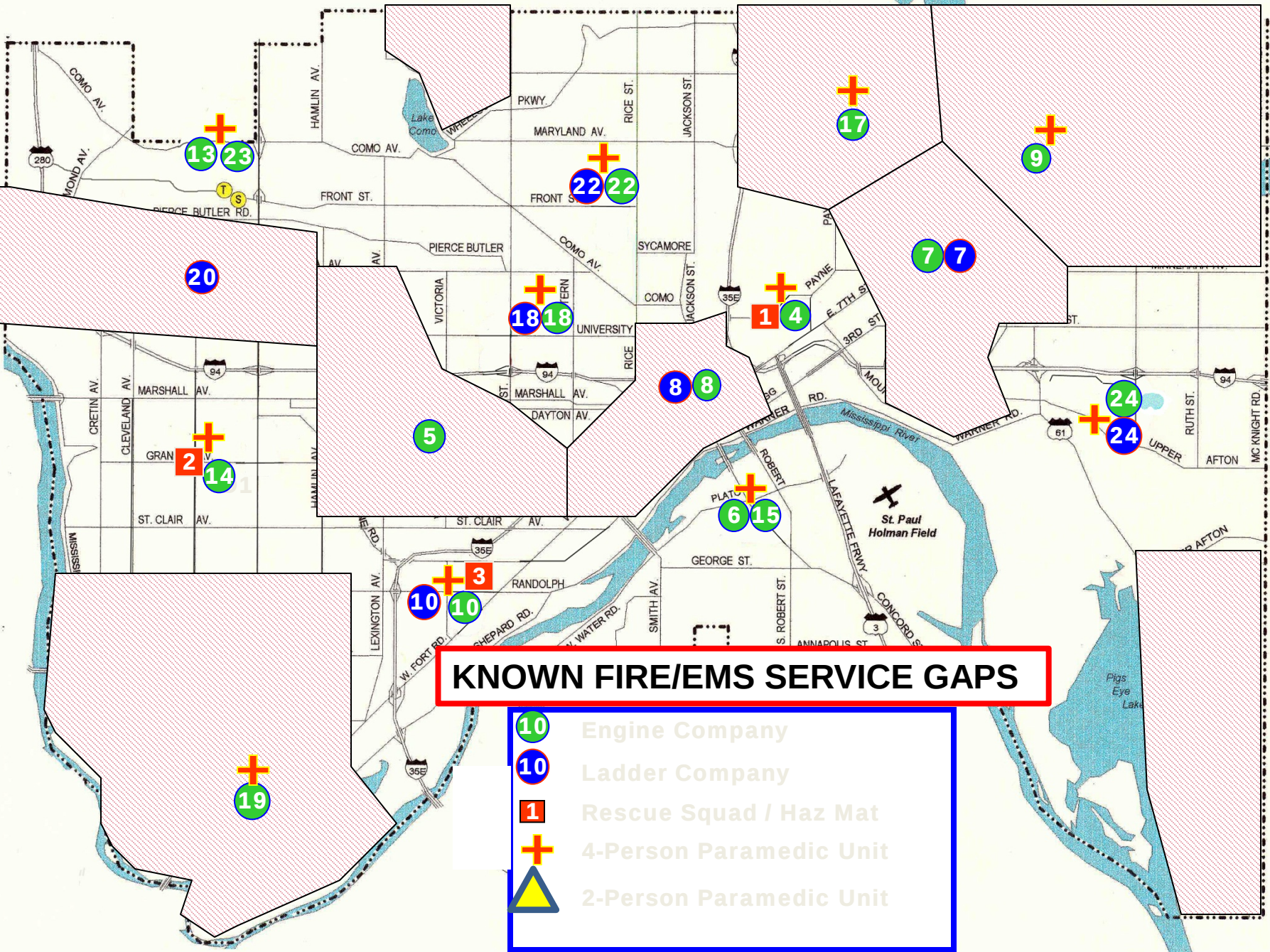
FD Strategic Studies/Plans

- ✦ **Carol Bruraker – 1989**
- ✦ **FD Master Plan – 1989**
- ✦ **Fire/EMS Plan – 1990**
- ✦ **FD Strategic Plan – 2000**
- ✦ **Tri-Data Study – 2007**

FD Strategic Studies/Plans



- ✦ **FD Strategic Plan – 2007**
- ✦ **Budget Task Force – 2012**
- ✦ **Diversity Task Force – 2013**
- ✦ **Health and Wellness Task Force – 2015**



KNOWN FIRE/EMS SERVICE GAPS

- 10 Engine Company
- 10 Ladder Company
- 1 Rescue Squad / Haz Mat
- + 4-Person Paramedic Unit
- ▲ 2-Person Paramedic Unit

Implications of “Gaps”



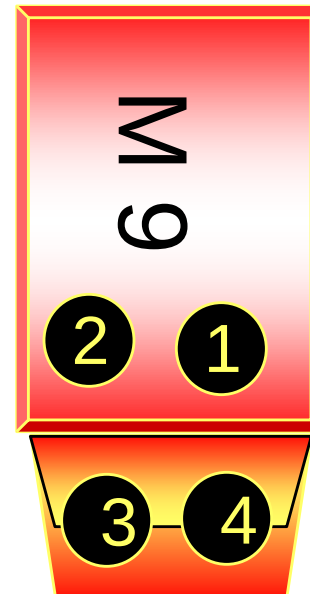
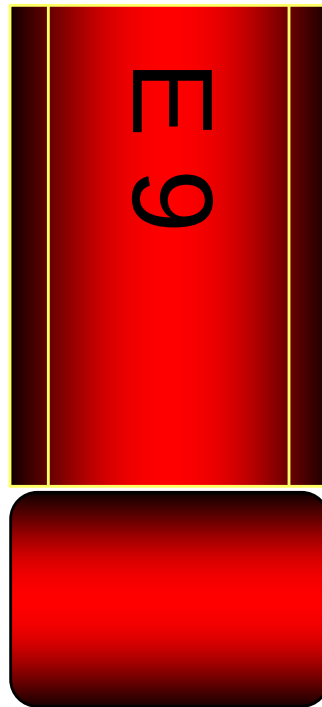
- ✦ **Longer Response Times**
 - ✦ **More Direct & Indirect Loss during Fire Calls**
 - ✦ **Higher Mortality, Hospitalization, Expense, & Lost Time**
- ✦ **Adjacent Areas – Impacted Twice**
- ✦ **Crew Burnout & Chronic Stress**
- ✦ **Loss of Medics**
- ✦ **Increased Wear/Tear on Apparatus**
- ✦ **Significant Racial Equity Impacts**

FD Strategic Principles

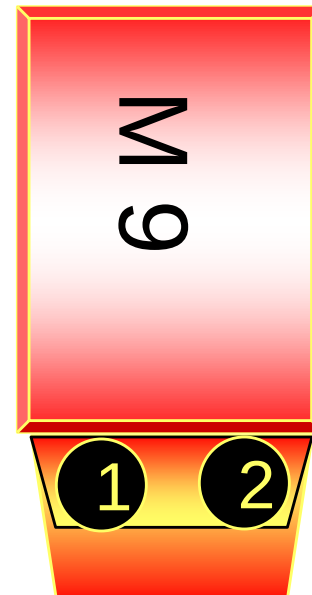
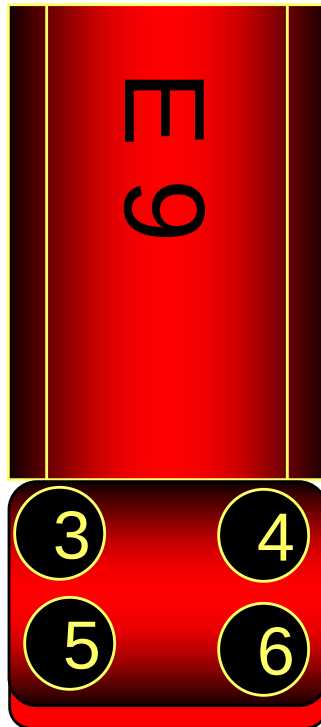


- ✦ **Replace Dual-Staffing with “Independent Staffing”**
- ✦ **A Medic Unit in Every Station**
- ✦ **No Single-Company Stations**
- ✦ **Grow EMS without impacting Fire Suppression**
- ✦ **Grow FD Structure to Support Service Delivery**

Dual-Staffed Engine/Medic



Super-Medic Operations



Recommendations



- ✦ **Increase Firefighter Staff Significantly**
- ✦ **Supermedics are Best Deployment Model**
- ✦ **Modernize Station / Technology Infrastructure**
- ✦ **Fill Key Personnel Positions**
- ✦ **Implement IAFF/IAFC Health-Wellness Initiative**
- ✦ **Match Workforce Diversity to Community's**
- ✦ **On-going Medic Training Program**

Response Times



Call Types

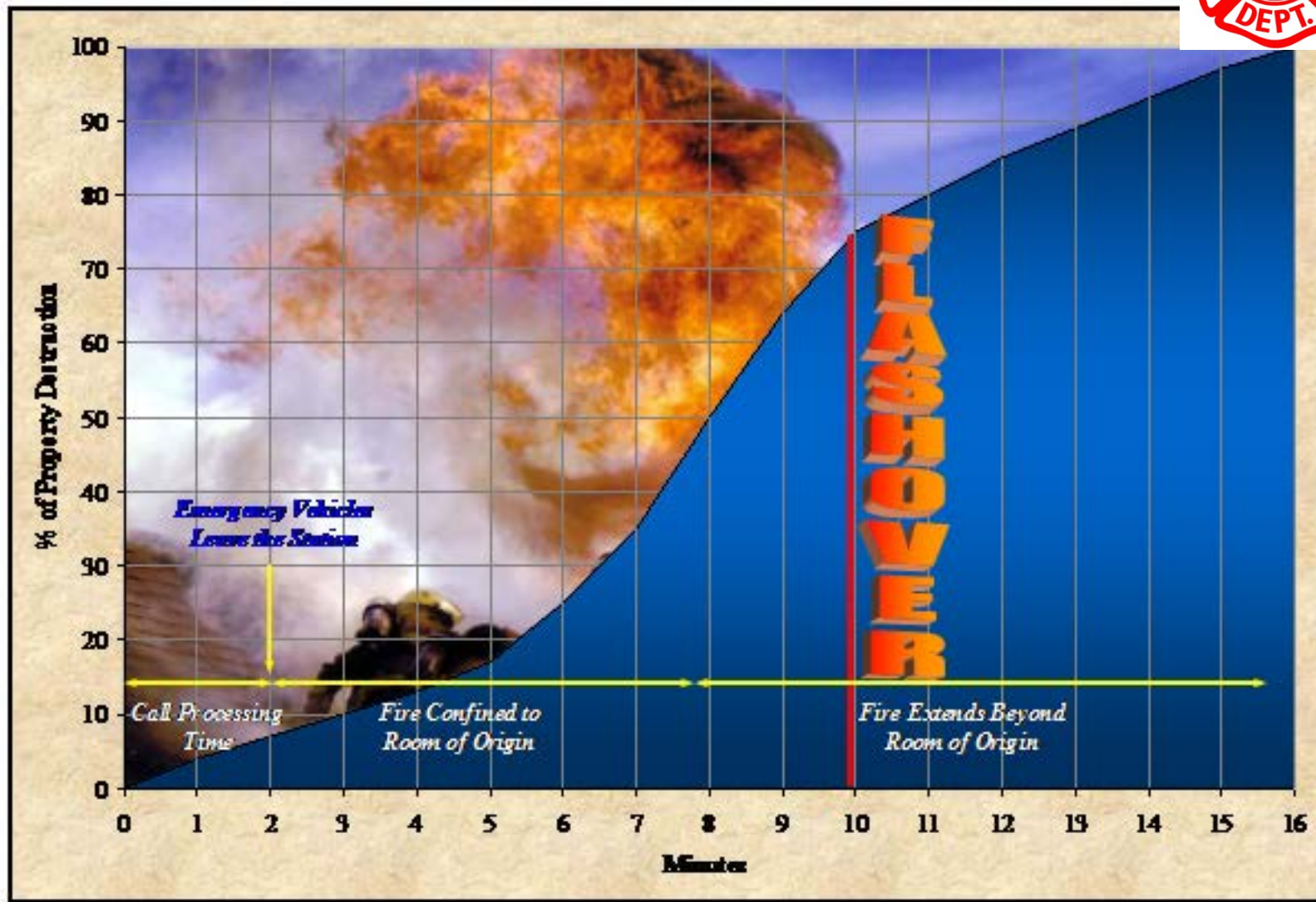
Call Volumes

EMS Response Times



- ❖ **BLS Unit Arrival: 5 minutes (1 T/O + 4 Travel)**
- ❖ **ALS Arrival within 9 minutes (1 T/O + 5 Travel)**
- ❖ **90% of the time**
- ❖ **Brain Starts Dying in 6 Minutes without O²**
- ❖ **10% Reduction in Cardiac Survival for Every Minute of Response Time**

Fire Propagation Curve





SPFD vs NFPA Standards

	BLS/AED	ALS	First Company	Full Assignment
Standard TOT + TT	1 + 4 Minutes	1 + 8 Minutes	1.33 + 4 Minutes	1.33 + 8 Minutes
Response Time Goal	5 Minutes	9 Minutes	5m, 20s	8m, 20s
SPFD in Last 4 Qtrs	7m, 02s	7m, 29s	7m, 28s	8m, 09s

Response Time = Turn Out Time (TOT) + Travel Time (TT)



SPFD Response Time Summary

- ❖ Front-loaded fire responses **ARE** compliant
- ❖ ALS unit arrivals **ARE** compliant
- ❖ “First In” EMS/Fire are **NOT** compliant:
 - Turn out Time
 - Station geographic spacing
 - Single company houses
 - Stations without medic rigs
 - Dual-staffed EMS impacting fire

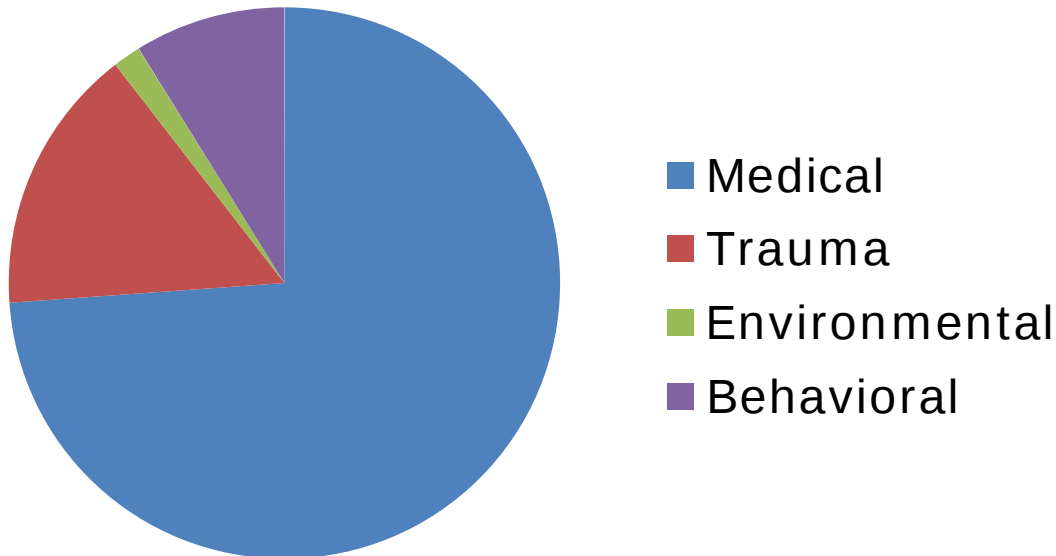


Call Types And Volumes

Run Types in 2015



Medical Calls



Increase over the Last 5 Years:

✧ Medical: 32%

✧ Environmental: 98%

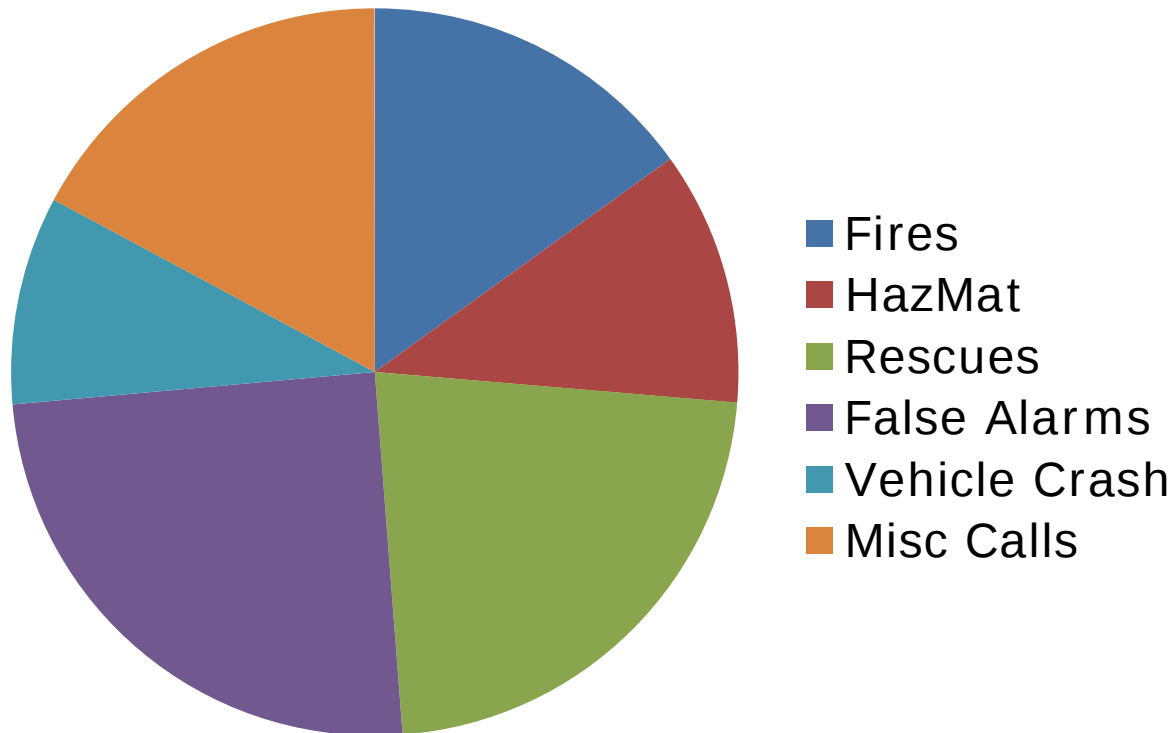
✧ Trauma: 27%

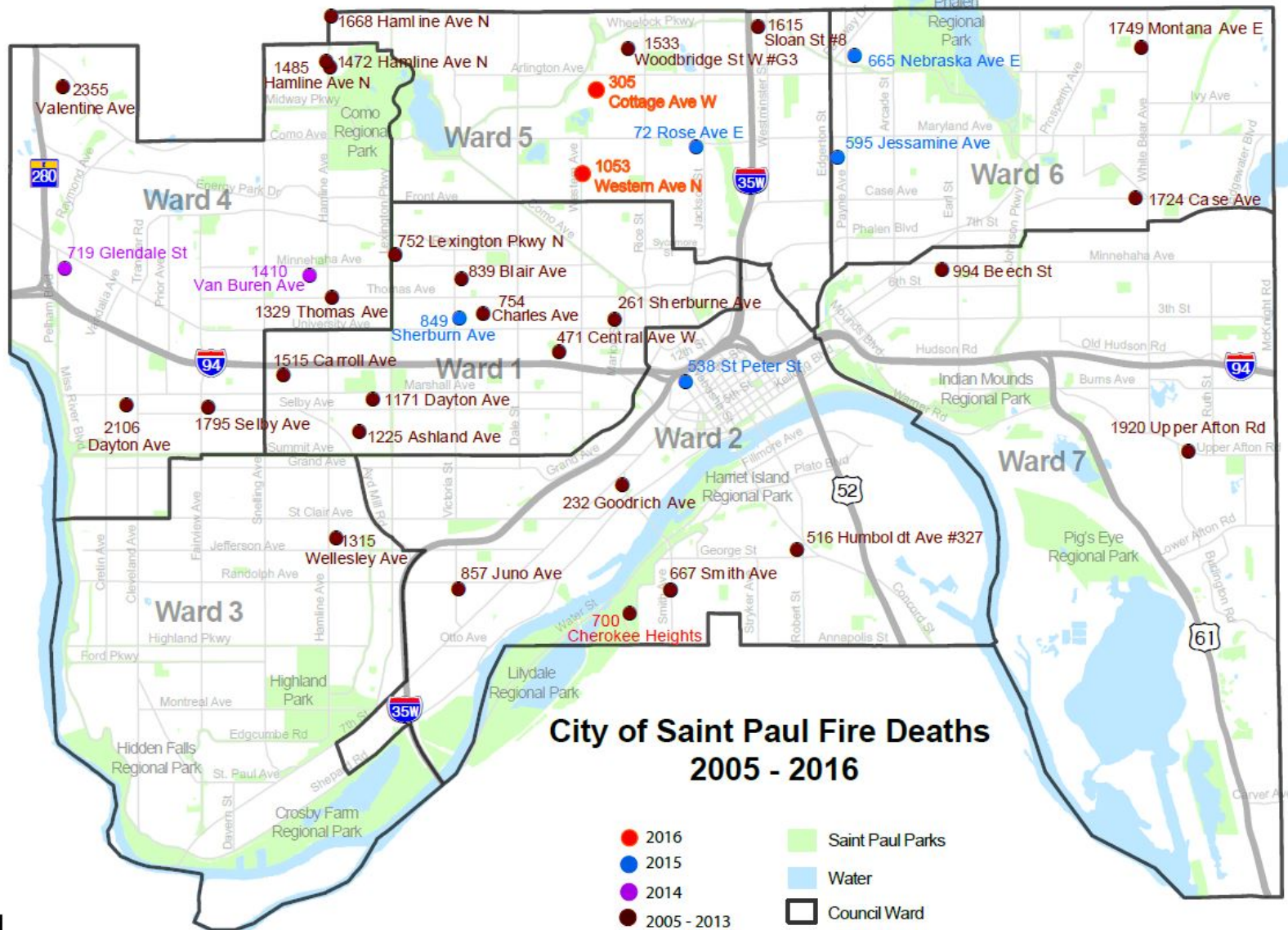
✧ Behavioral: 90%

Run Types in 2015



Fire Emergency Runs





Run Volumes by Year



Year	FIRE	EMS	Total
2015	9,763	32,632	42,395
2014	9,426	30,729	40,155
2013	8,991	29,578	38,569
2012	7,880	28,878	36,758
2011	8,518	26,429	34,947
2010	8,840	24,828	33,668
2005	7,065	28,159	35,224
2001	7,112	25,784	32,896

Last 5 years – Increase Fire: 10.4% EMS: 31.4%

14 year increase: Fire: 37.3% EMS: 26.6%

5 year increase (total): 25.9% 14 year increase (total): 28.9%

COMPANY WORKLOAD - 2015

10

Engine Company

10

Ladder Company

1

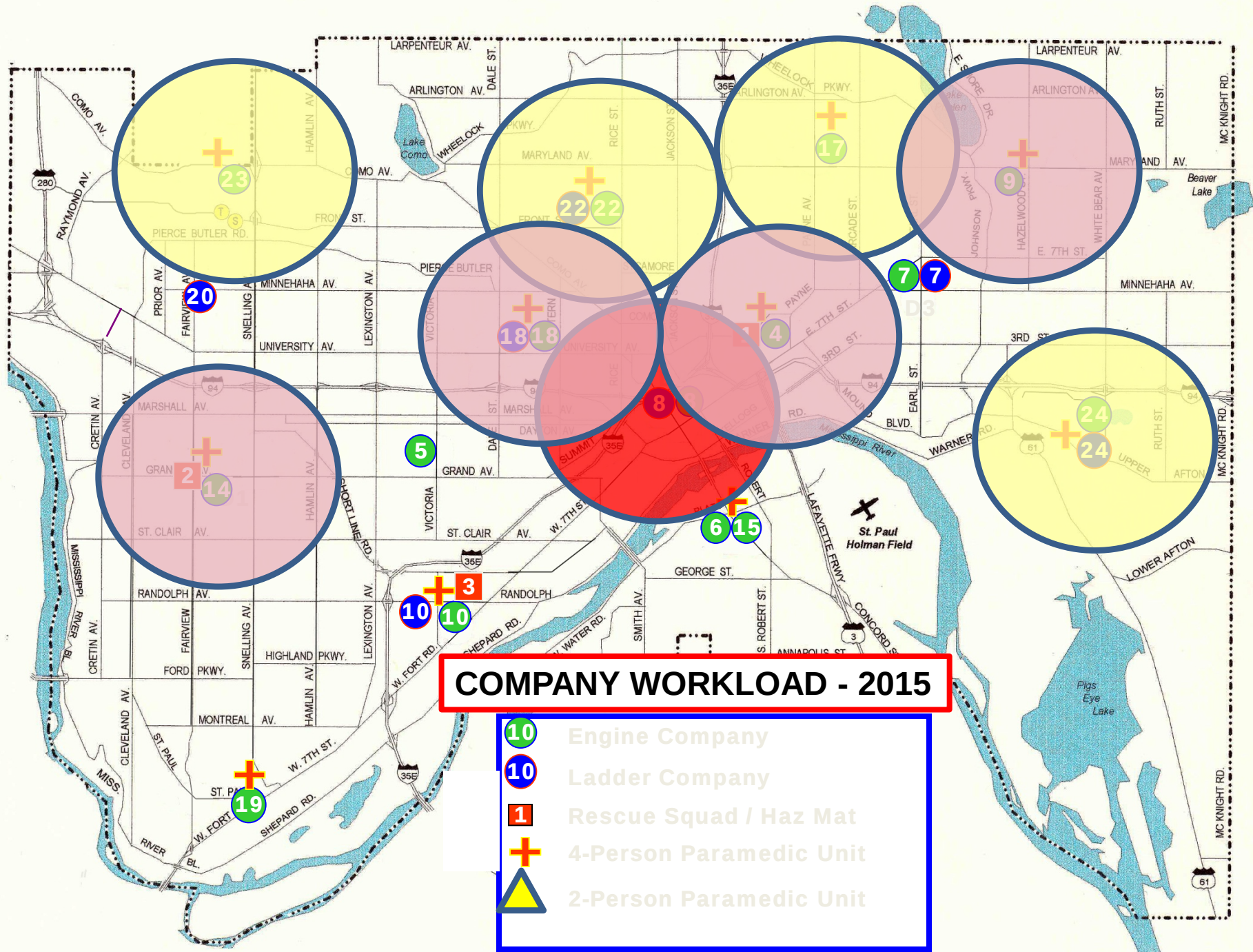
Rescue Squad / Haz Mat

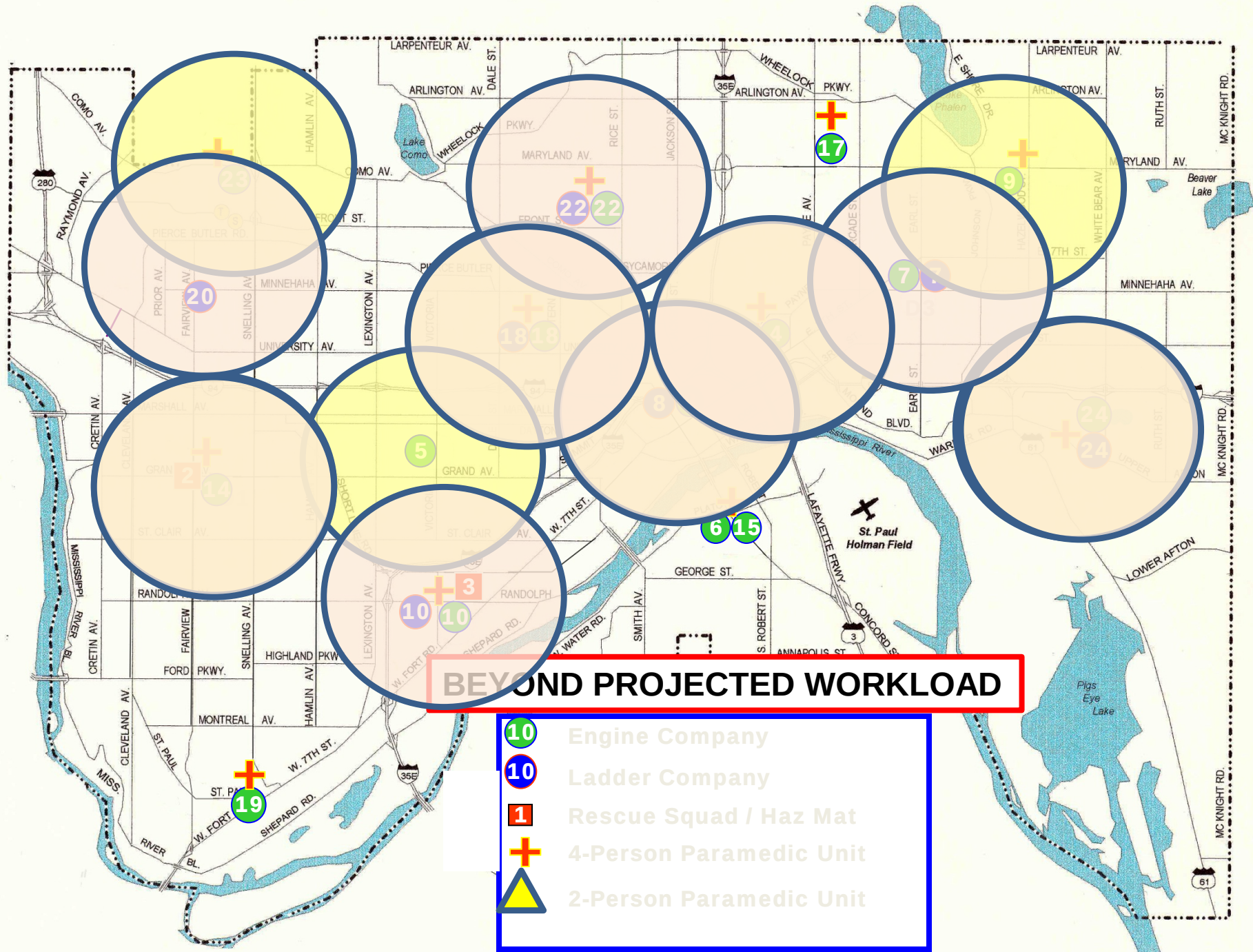
+

4-Person Paramedic Unit

▲

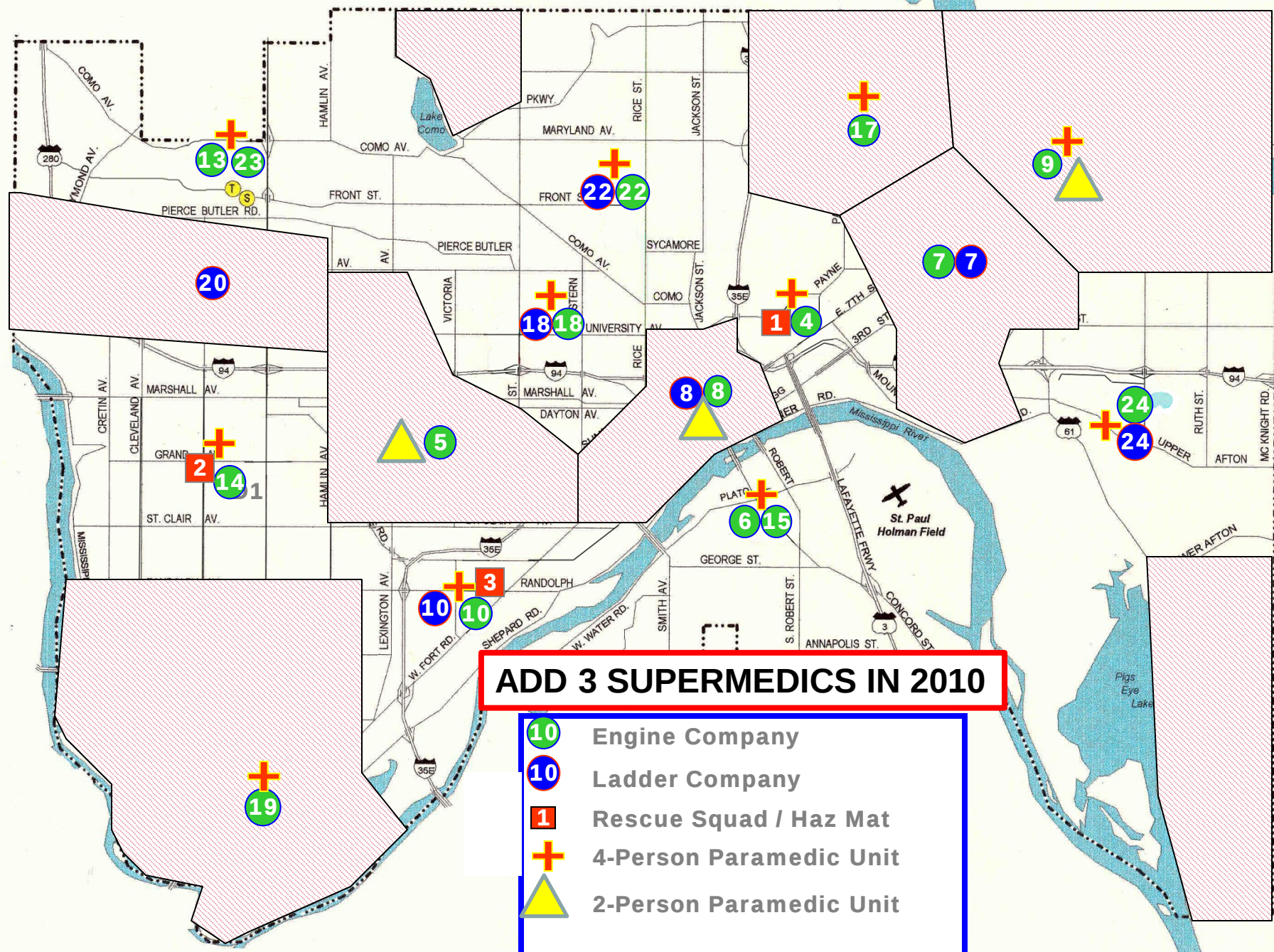
2-Person Paramedic Unit





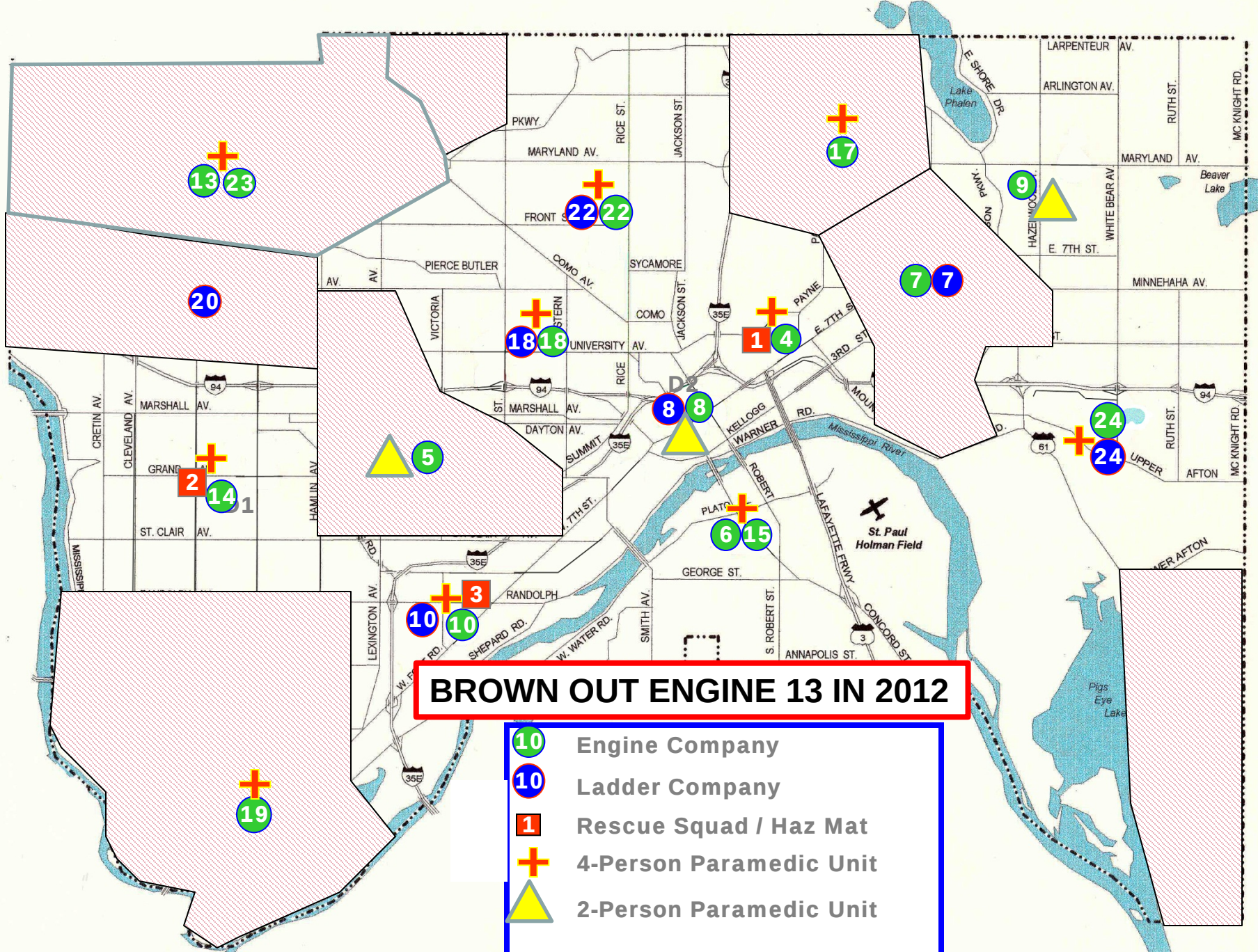


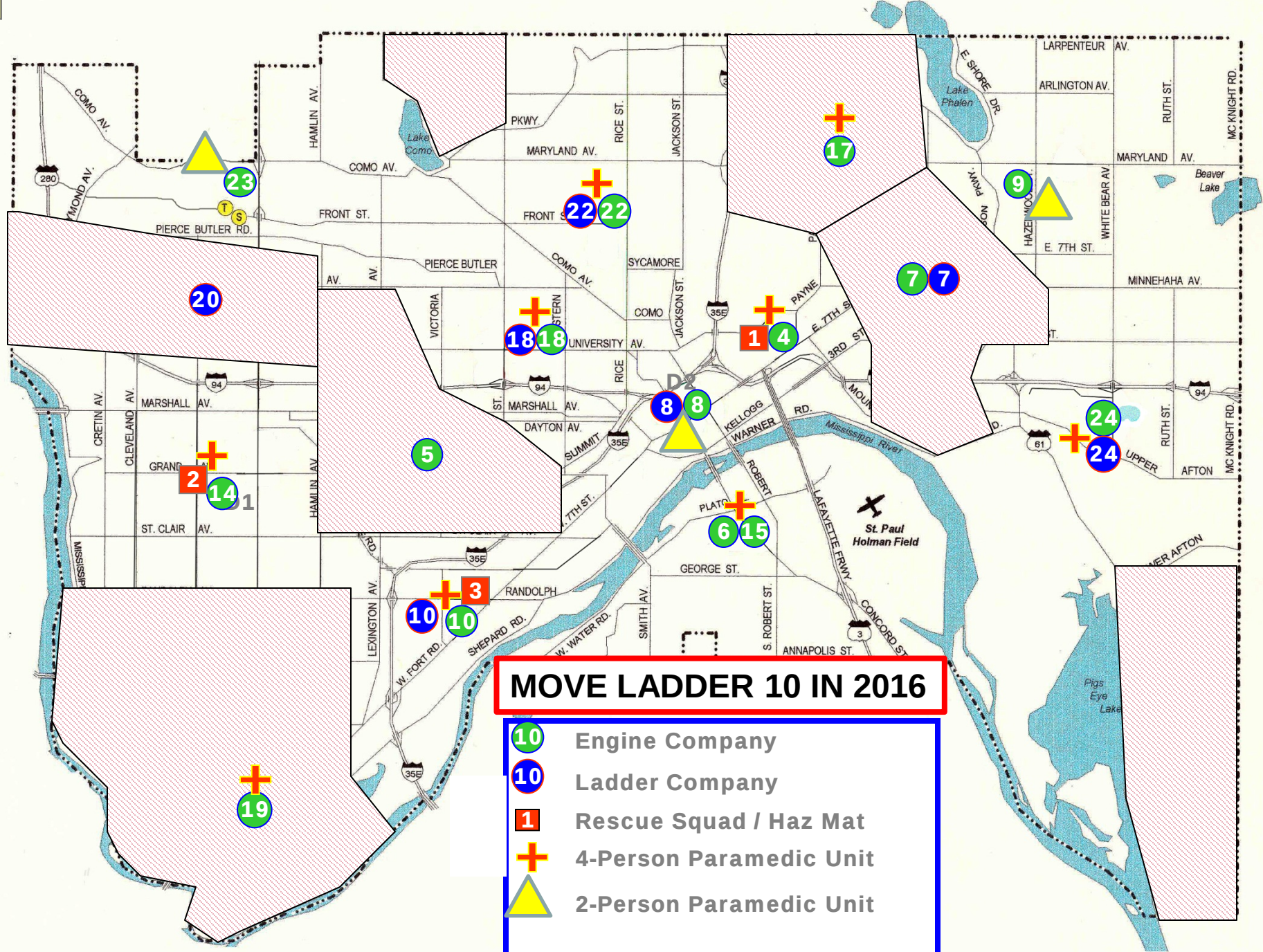
Service Gaps And Strategies to Close Them

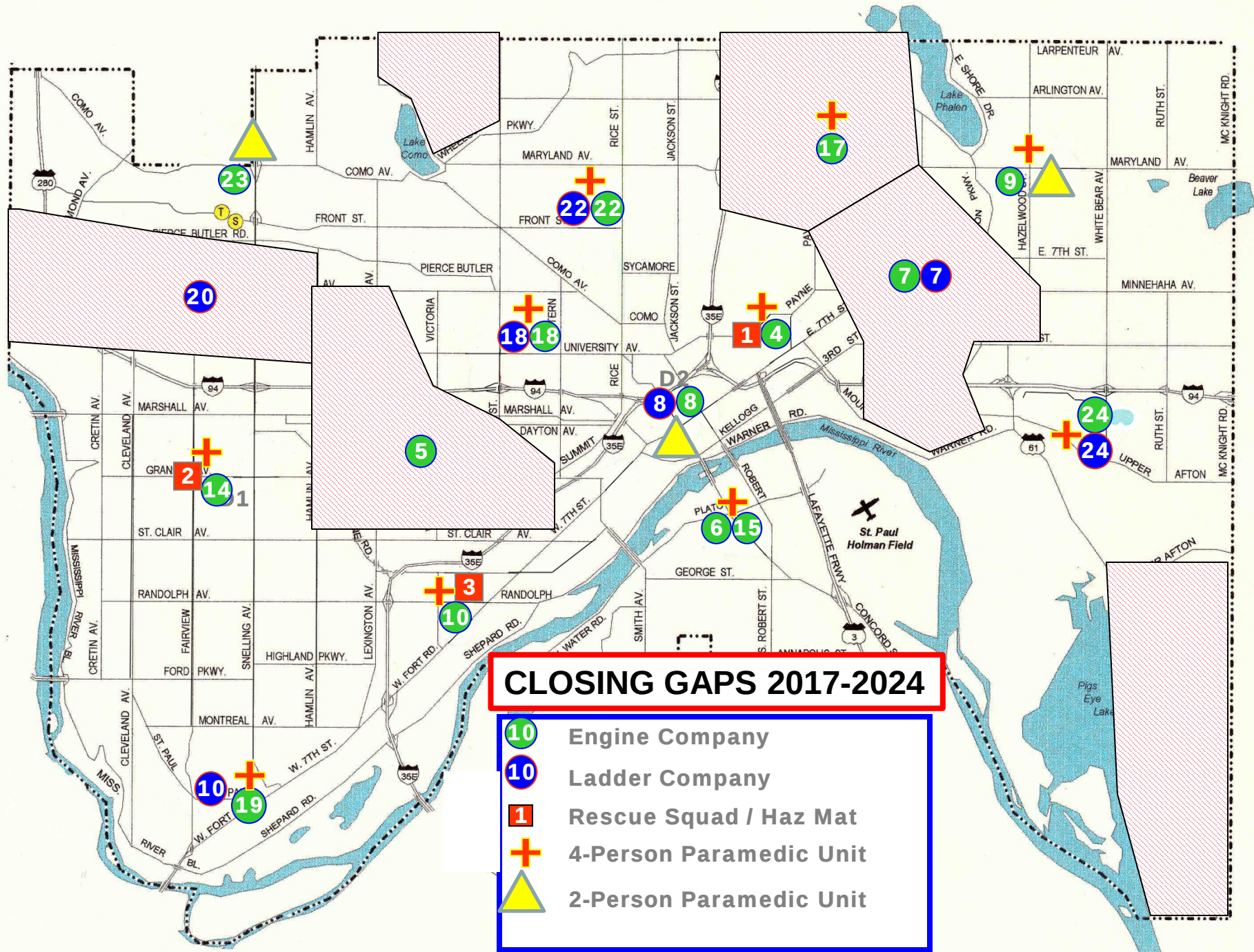


BROWN OUT ENGINE 13 IN 2012

- 10 Engine Company
- 10 Ladder Company
- 1 Rescue Squad / Haz Mat
- + 4-Person Paramedic Unit
- ▲ 2-Person Paramedic Unit









Service Gaps and Inequities

CAPITAL AND ONGOING COST & FTE'S TO CLOSE KNOWN SERVICE GAPS						
STATION	NEEDED ASSET	FACILITY COST	APPARATUS COST	NEW FTE'S	RECURRING CREW COST	RECURRING APPARATUS COST
5	Super-Medic	0	220,000	8	622,000	45,000
20	Engine & Super-Medic	7,000,000	220,000	24	1,392,000	45,000
7	Super-Medic	7,000,000	220,000	8	622,000	45,000
17	Super-Medic	6,000,000	0	8	622,000	0
TOTALS		20,000,000	660,000	48	3,258,000	135,000

Efforts To Close Gaps



- ✦ **General Fund Budget Requests**
- ✦ **CIB Process**
- ✦ **SAFER Grants**
- ✦ **Fire Station Construction Grants**

Why Is Station 5 An Issue??



- ✧ It's the Cheapest & Easiest Gap to Close
- ✧ It's a Single-Company House
- ✧ It has no Medic Rig
- ✧ Rising EMS demand Citywide
- ✧ Green Line residential and commercial growth
- ✧ Engine 20 cut in 2003 and Engine 13 in 2012

Station 5 Gap



In 2014, Engine 5 was:

- ✧ Unavailable for 831 fire calls due to EMS work
- ✧ Unavailable for 1,515 EMS calls due to fire work
- ✧ “Outside” medic rigs responded 2,005 times
- ✧ Response time increase of 3-4 minutes to fire/EMS calls
- ✧ Significant increase in EMS for adjacent medic units:
 - ✧ M14 = 16.5% (11/day) ✧ M18 = 16% (12/day)
 - ✧ M8 = 51% (11/day) (20/day in 2015)

Options for Station 5



- ✦ Best Option: Invest in a Supermedic
- ✦ Non-Viable Options:
 - ✦ Do Nothing
 - ✦ Split Up a Fire Company
- ✦ Compromises:
 - ✦ Move a Supermedic to 5s
 - ✦ Dual Staff Engine 5



Staff, Stations, Rigs

Staff Positions Cut Since 1990

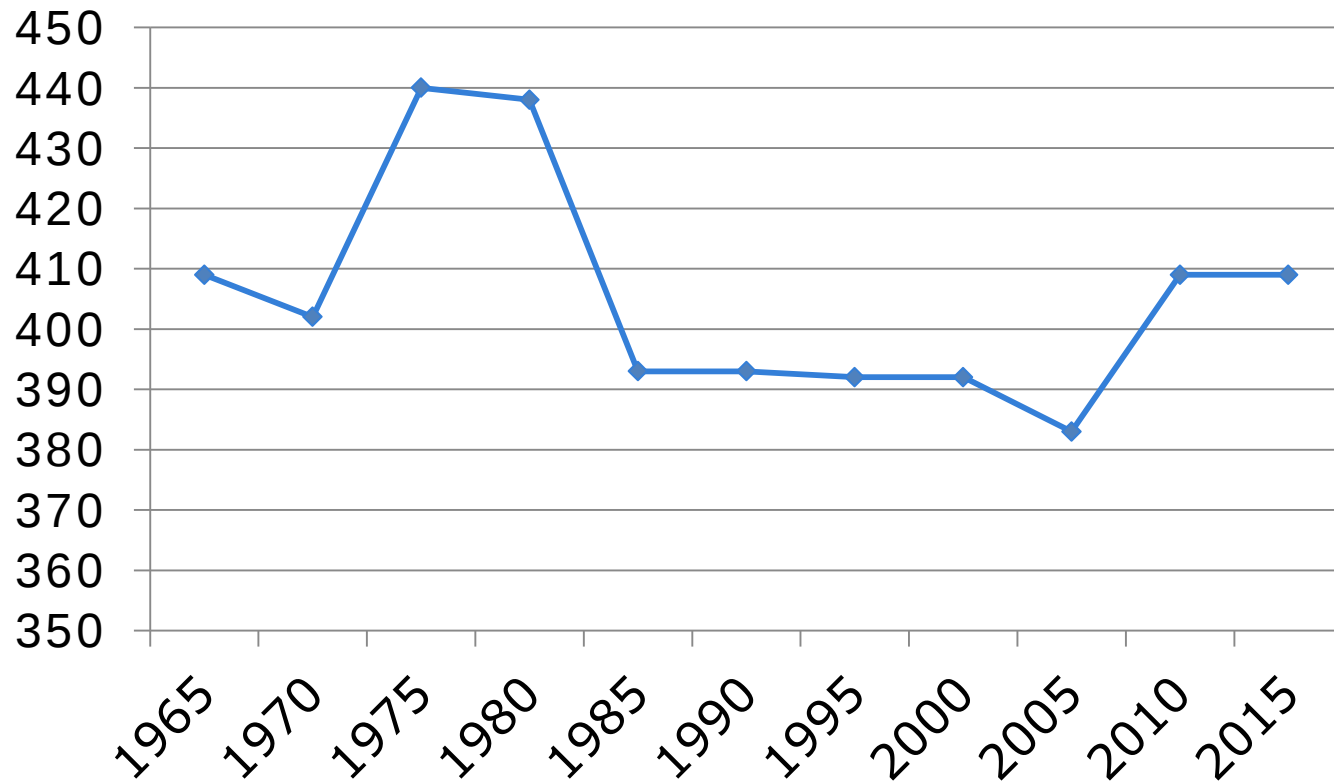


4 Division and 66 positions cut since 1990

- ❖ 19 from Communications/Emergency Management
- ❖ 26 from Fire Investigations/Inspections
- ❖ 7 Command Staff
- ❖ 8 FEO/Captains
- ❖ 6 Support Staff/Health and Wellness

50 Year History of Line Positions

Number of Captains, FEOs,
& Firefighters



Key Positions Needed



- ❖ **Supermedic Companies (8 FTEs & \$700K Each)**
- ❖ **Health and Wellness Program Management**
- ❖ **Training Officer**
- ❖ **Special Operations Chief**
- ❖ **EMS Coordinator for each Shift**
- ❖ **Fire Medic Cadets**



Station Replacement Schedule

20 Year Station Replacement Schedule



Year	Current Facility	Year Built	Estimated Cost	Proposed Replacement	Age at Replacement
2016	Fire Station 19 Remodel	1958	3,419,000	3,800 GSF 3rd Bay Additions	N/A
2017	Fire Station 20	1921	7,760,036	15,500 GSF 4-Bay Station	96
2020	Fire Station 7	1930	9,640,269	15,500 GSF 4-Bay Station	90
2024	Fire Station 17	1930	10,888,118	13,000 GSF 3-Bay Station	94
2028	Fire Training / PSG Campus	1950/1982	38,582,538		78
2032	Fire Station 18	1908	22,960,996	15,500 GSF 4-Bay Station	124
2036	Fire Station 5	1930	25,933,098	13,000 GSF 3-Bay Station	106
	Total		119,184,056		



Station 19

Expansion Update

Station 19 Update



- ❖ **Budget vs Design: Scope of Project Reduced**
- ❖ **Contracts Signed and Permits Approved**
- ❖ **Interior Work has Begun**
- ❖ **Weekly Meetings at the Station**
- ❖ **Groundbreaking Ceremony: May 9, 3:30 PM**
- ❖ **Construction Completed: November 2016**
- ❖ **Ladder 10 Moves to 19's ASAP**



Vehicle Replacement Schedule

Apparatus Replacement Notes

- ❖ **Life Expectancy Goals:**
 - ❖ **5 years, 100,000 miles for medics**
 - ❖ **12-13 years for fire suppression rigs**
- ❖ **5-7% annual cost increase from manufacturers**
- ❖ **NFPA: 1 reserve rig for every 4 front line rigs**
- ❖ **NFPA: No reserve rig > 25 years old**

Age of the Fleet



Criteria	2006	2016
Avg. Age fire rigs	10 years	12.5 years
Fire % $\geq$ 10 years	38%	58%
Fire % $\geq$ 20 years	18%	18%
EMS % $>$ 5 years	53%	62%
Oldest Reserve	25 years	25 years

Front Line + Reserve Rigs

Age of the Fleet



If Current Replacement Schedule is funded:

- ✦ Average age at replacement for Ladders: 13.0 years
- ✦ Average age at replacement for Squads: 13.3 years
- ✦ Average age at replacement for Engines: 14.6 years

Front Line Rigs Only

The key phrase is:

“If current replacement schedule is funded”

Replacement Schedule Funding

Year	Apparatus	Cost	Budget	Deficit	Accumulated Deficit
2017	Ladder + Engine + 2 Ambulances	2,216,974	1,300,000	916,974	916,974
2018	Squad + Engine + 2 Ambulances	1,795,447	1,300,000	495,447	1,412,421
2019	Ladder + Engine + 2 Ambulances	2,425,359	1,300,000	1,125,359	2,537,780
2020	3 Engines + 2 Ambulances	2,431,086	1,300,000	1,131,086	3,668,866

In 4 years, we'll be 3 years behind

Apparatus Replacement Formula

Here's what's really needed to sustain the fleet:

7 ladders + 25% in reserve = a ladder fleet of 9 at \$1M each. To maintain a 12 life span, we need \$750,000 annually to meet that schedule.

3 squads + 25% = 4 rigs at \$825,000. Maintaining a 12 year life span requires \$275,000 annually to sustain the replacement schedule.

16 engines + 4 spares = an engine fleet of 20. At \$550,000 each with a 12 year life cycle means an annual sustainment of \$916,700.

20 medic rigs/ambulances at \$200,000 each at a 5 year life cycle is \$800,000 annually.

Total annual replacement costs required: \$2.7 million, or roughly twice our current replacement budget



General Fund & CIB Needs

General Fund Needs



GENERAL FUND BUDGET NEEDS	2017	2018	2019
Comprehensive Health & Wellness Program	250,000	250,000	250,000
Supplemental Apparatus Replacement Funding	917,000	495,000	1,125,000
EMS Coordinator Funding (Daily Staffing to 115)	80,000	80,000	80,000
Project Safe Haven Supplies (250 visits/year)	37,500	37,500	37,500
Training Officer	130,000	130,000	130,000
Rescue CPR Devices	35,000	0	0
Station Alerting Licenses / User Agreements	57,000	57,000	57,000
8 FTEs for Supermedic 5	700,000	700,000	700,000
Special Operations Chief	180,000	180,000	180,000
Firefighter Entrance Exam	500,000	0	0
Internal Medic Training Program	150,000	150,000	150,000
4 FTEs to enhance Fire Medic Cadet Program	185,000	185,000	185,000
Second EMS Academy annually	50,000	50,000	50,000
Recruiting and Fire Explorer Support	25,000	25,000	25,000
TOTALS:	3,296,500	2,339,500	2,969,500

Capital Needs



	2,017	2,018	2,019
CIB Funding for Station 20	1,000,000	6,000,000	0
Replacement of Mobile and Portable Radios	500,000	500,000	500,000
M4 Fueling & Billing System Replacement	500,000	0	0
CIB Funding for Station 7 design/plans			1,000,000
TOTALS:	2,000,000	6,500,000	1,500,000



Railcar Shipments & Oil Tankers



Common Chemicals

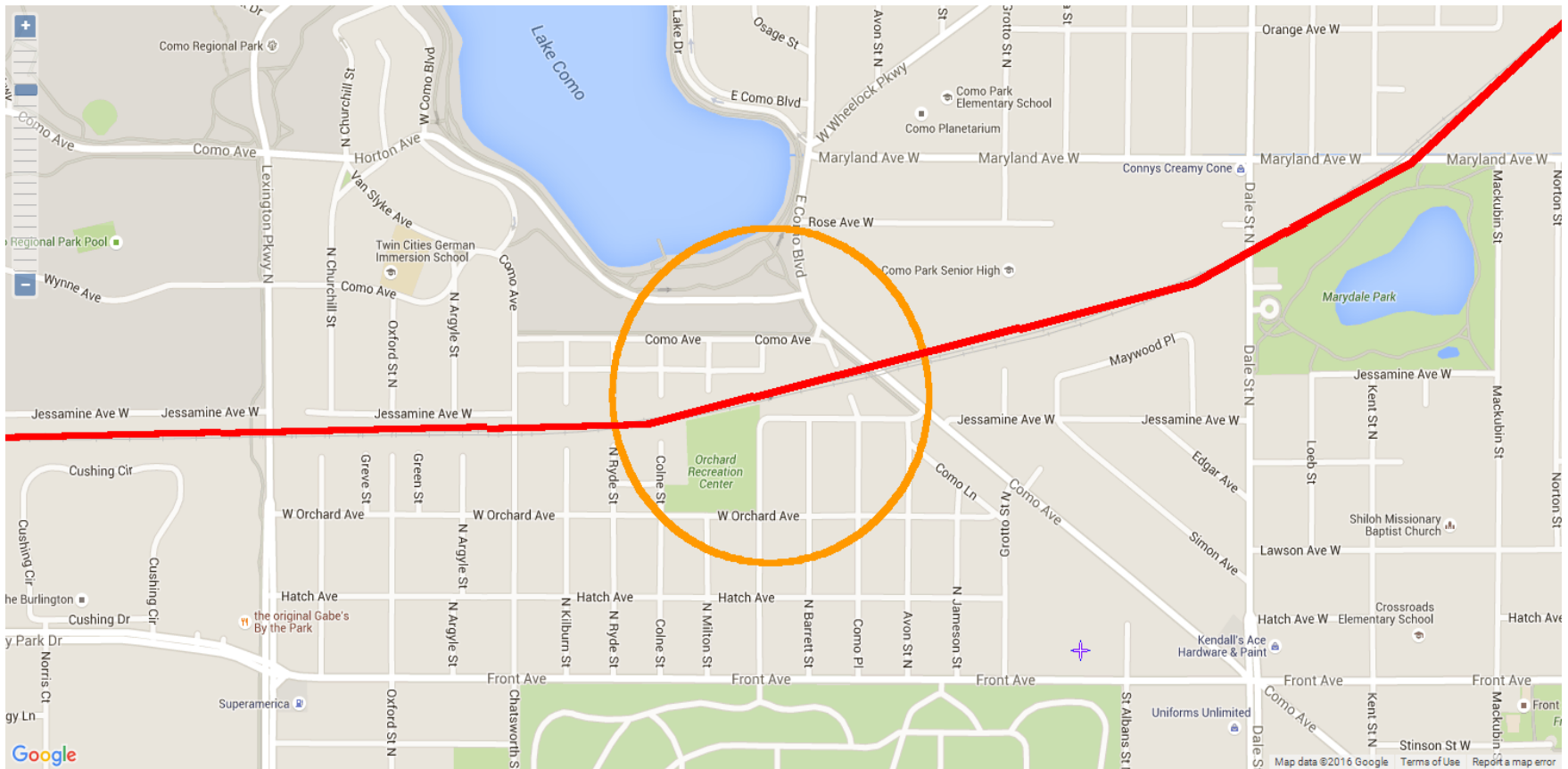
- ✦ Petroleum Crude Oil
- ✦ Alcohols
- ✦ Petroleum Gases
- ✦ Sodium Hydroxide
- ✦ Sulfuric Acid

Crude Oil



- ✦ Highly Flammable
- ✦ 30,000 Gallons Per Car
- ✦ Heavy Resource Allocation
- ✦ Half Mile Evacuation Initially (IF on FIRE)
- ✦ Partnerships are key

Evacuation

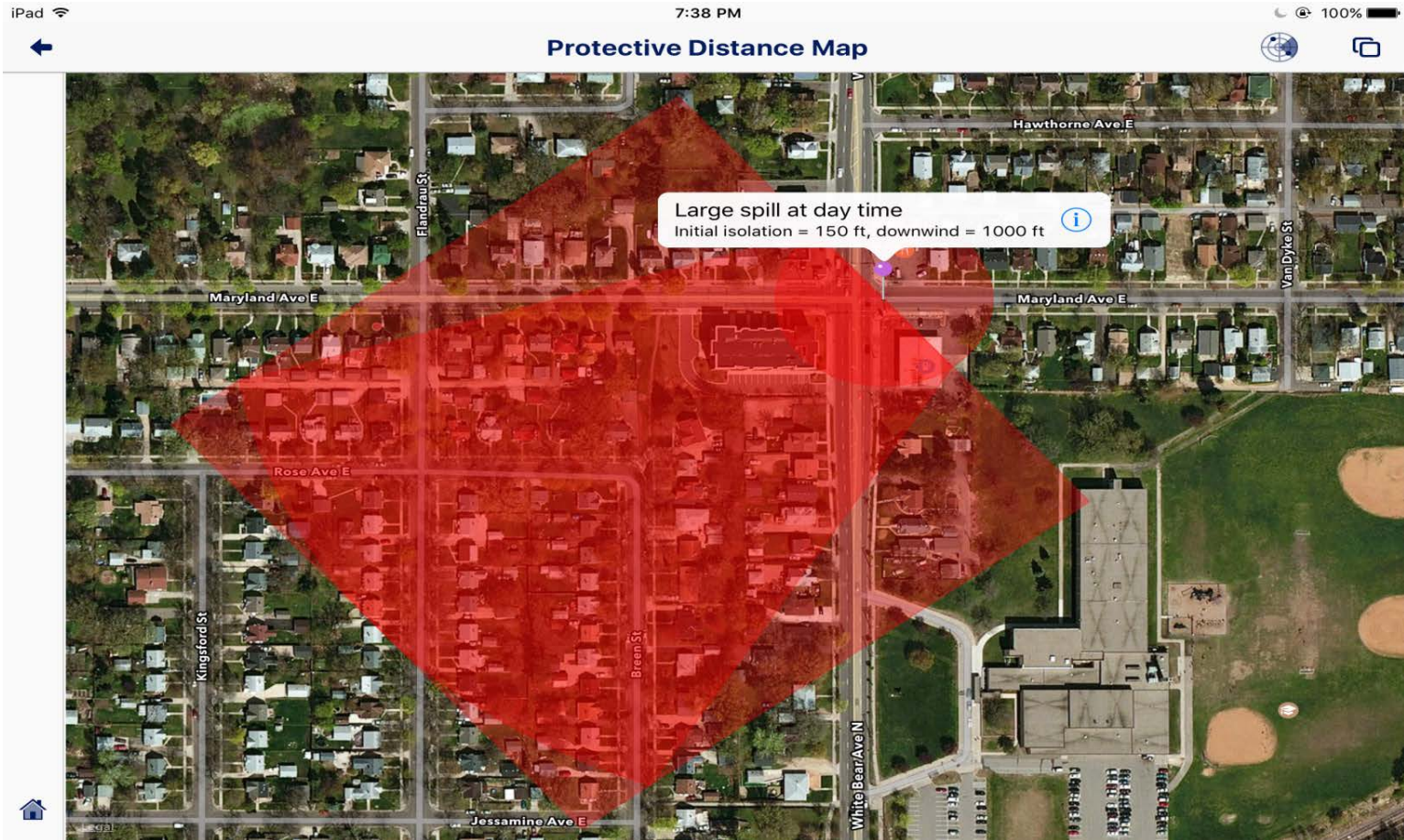


Evacuation Mapping



- ✦ CAMEO, MARPLOT, ALOHA
- ✦ <http://maps.stpaul.city/rail/> (EM DEVELOPED)
- ✦ Google Earth
- ✦ Railroad Crossing IPAD Application
- ✦ Center for Toxicology Environmental Health (CTEH)
- ✦ WISER (HAZMAT MOBILE SITE)

WISER MAPPING



WISER MAPPING



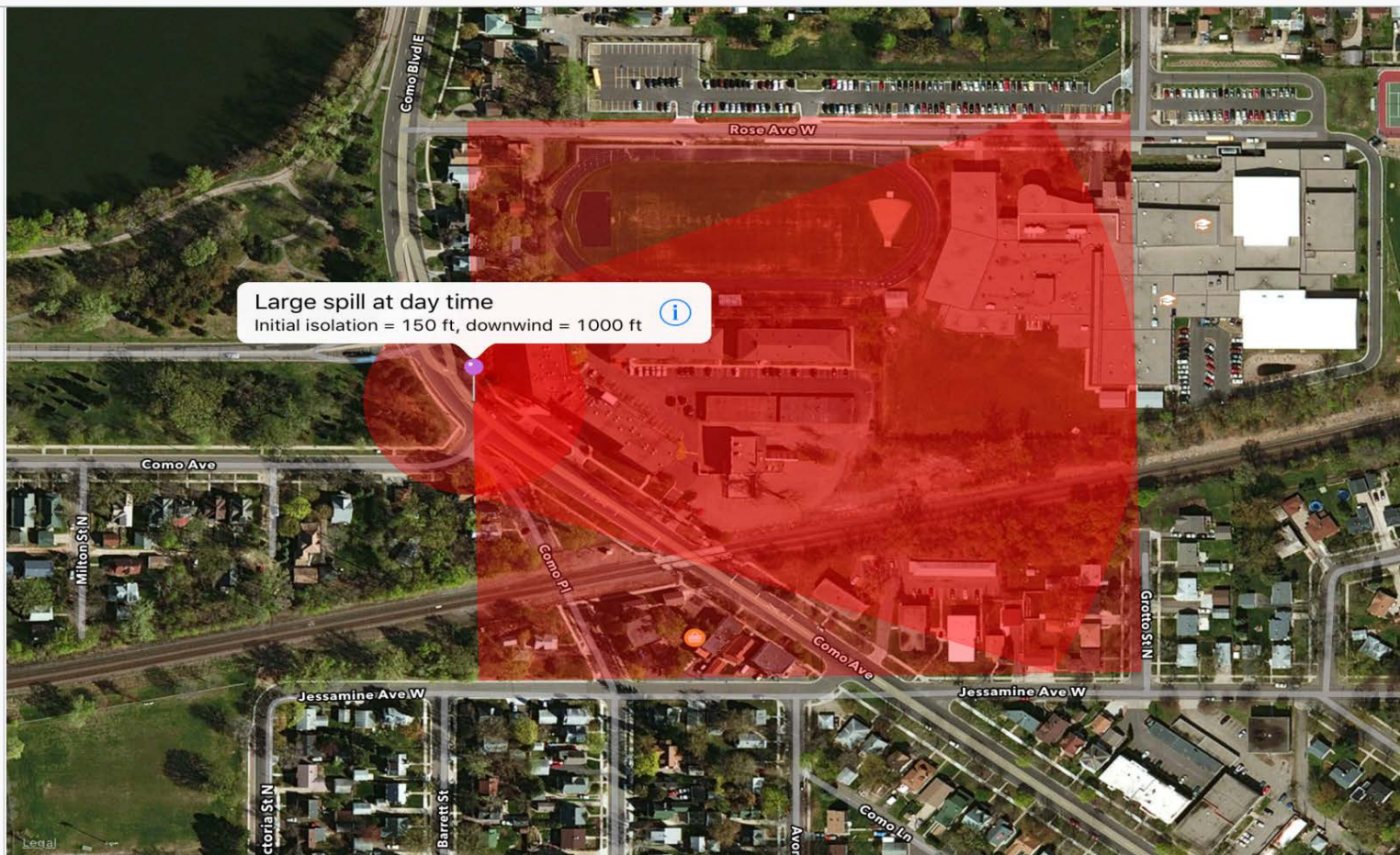
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Protective Distance Map



Initial SPFD Resources



- ✦ 2 Chief Officers
- ✦ 1 Emergency Response Team
- ✦ 1 Chemical Assessment Team
- ✦ 2 Rescue Squads
- ✦ 4 Engines
- ✦ 2 Ladder Trucks
- ✦ 2 Medic Rigs
- ✦ Incident Commander Determines Resources
- ✦ 14 Resources Committed/ 44 Personnel

Other Resources



- ✦ Emergency management (EOC)
- ✦ Class 1 Rail Rep. (BNSF, CP, UP)
- ✦ Police
- ✦ Public Works
- ✦ Parks And Recreation
- ✦ State Duty Officer (MDH, FBI, 55th CST, PCA)
- ✦ Other HAZMAT Teams
- ✦ Environmental



Incident Action Plan

- ✧ Activate the Emergency Operations Center
- ✧ Evacuation vs. Shelter in Place (Life Safety)
- ✧ Contain Product
- ✧ Extinguish Fire vs. Allow to burn
- ✧ Eliminate Ignition Sources
- ✧ Reconstitute Community
- ✧ Rail back In Service
- ✧ Post Incident Rebuild

IAP Continued



- ✦ Life Safety
 - ✦ Evacuation
 - ✦ Medical care
 - ✦ Long Term and Short term Housing and Food (CLAIMS TEAM)
- ✦ Fire Suppression
 - ✦ Establish a water supply large enough for the event
 - ✦ Stop the spread of the fire
 - ✦ Preserve as much property as possible
 - ✦ Extinguish or allow to burn (very difficult to extinguish HIGH VAPOR PRESSURE/VERY FLAMMABLE)
- ✦ Hazardous Material Goals
 - ✦ Monitor area and set Hot, warm, and cold zones
 - ✦ If not on fire, contain the Crude oil spill
 - ✦ Prevent Crude from entering the sewers and other environmental areas
 - ✦ If it is on fire, cool the tank with unstaffed monitors and stop spread of fire

Rail Response Conclusion



- ⌘ Command Presence On Scene
- ⌘ Determine product
- ⌘ Develop IAP
- ⌘ Establish Evacuation Zones/Plan
- ⌘ Activate the EOC
- ⌘ Mitigation
- ⌘ Clean Up
- ⌘ Restore Community



Lilydale Location & Response

Lilydale Response Update



- ❖ **National Grid System Signage – Installed**
- ❖ **ECC & Fire Response Training – Completed**
- ❖ **Joint ECC/Fire Department Exercise – Held**
- ❖ **“App” – Complete and Available**
- ❖ **Parks Permitting Includes Warning**

Summary



- ❖ We've Implemented a lot of Change
- ❖ Strategic Goals & Direction Remain
- ❖ Supermedics Work
- ❖ System Overstressed for 30 Years
- ❖ No Change Possible without Investment
- ❖ Capital & Cost of Living Must Be Addressed



Other Items & Questions