

FORT LAUDERDALE CITY COMMISSION CONFERENCE MEETING
NOVEMBER 6, 2012

Agenda

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Present: Mayor John P. "Jack" Seiler
Commissioners Bruce G. Roberts, Charlotte E. Rodstrom, Bobby B. DuBose and Romney Rogers

Also Present: City Manager Lee R. Feldman
City Auditor John Herbst
City Clerk Jonda K. Joseph
City Attorney Harry A. Stewart
Sergeant At Arms Sergeant Mark Renner

BUS-1 – Partnership with IBM to Develop Resource Optimization Solution for Police Department

The City Manager advised that time is of the essence on this matter because IBM has a funding commitment that will expire by the end of the year.

David Edwards, Associate Partner, IBM, noted his experience and went on to describe IBM's three lines of business. IBM Research is one of the largest privately funded research and development organizations in the world. IBM Research's job is to invest in cutting edge thought leadership and solutions that will help IBM's clients. One way is through First Of A Kind programs (FOAK). It is a way to collaborate with IBM business lines and a customer to develop a brand new solution to a key strategic issue. IBM would like to partner with the City in a City Resource Optimization Solution. He summarized the most important points in slides that were provided on this topic. A copy of the slides is attached to these minutes. This would be a collaborative effort among IBM, Fort Lauderdale and Minneapolis.

Commissioner Roberts felt this would be a great way to optimize the City's resources which is difficult to do on a daily shift basis. The Police Department's size has not changed in the past fifteen years, for example. Criminals in South Florida are very mobile and there are seasonal aspects to the crime rate. Anything that can help would be a good choice. The City Manager responded to his question, that the City's commitment would be \$150,000 funded from the Law Enforcement Trust Fund (LETF). Vice Mayor Rodstrom agreed from an efficiency standpoint. She questioned whether the funding source is permissible. The City Attorney confirmed that for the Police Department, Law Enforcement Trust Funds can be used for any one-time program separate from what is done on a regular basis. Commissioner Roberts thought that once this moves past the research and development phase, LETF funding for a period of two years at that percentage also be planned for. Vice Mayor Rodstrom agreed. Commissioner Rogers asked if IBM was to charge for this project, what would be the dollar amount. Mr. Edwards thought it is at least \$1 million in effort and probably closer to \$2 million. The amount of effort will ultimately be defined by the nature of the solution that is developed. The objective is to have a product to sell. Pricing would be based on what was put into it in development. It would be proprietary. It is not possible to project the cost. The City Manager responded to Commissioner Rogers' question of whether this technology could eventually be used in other department. Although the goal is always to parallel activities, the goal in this instance is effective deployment of police resources which would be completely different than fire rescue resources as one is dynamic and one is static. Lessons learned that can be applied across the organization will be done. Commissioner Roberts explained the success of policing is dedicating problem-solving time to problems. This would free up time for officers. After two years, the City would well positioned to decide whether to continue. Vice Mayor Rodstrom pointed out that during the two years,

technology will improve in general. Mr. Edwards responded to Commissioner Rogers as to IBM's competitors in this area. Mayor Seiler agreed that public safety is the City's number one priority. He also agreed with use of LETF as a funding source. He asked about where Minneapolis is in comparison with Fort Lauderdale. Mr. Edwards advised that Minneapolis is in contract negotiations at this time and hopefully will be completed in the next two weeks. It is a collaborative and thus identical project. Mayor Seiler supported the concept.

The City Manager advised that the next step would be to work with the City Attorney and IBM on a contract and present it no later than December 18. The City Auditor indicated that the procurement code does not contemplate public/private partnerships, therefore it will require a waive of the purchasing requirements which could be accomplished when the item comes before the Commission.

BUS-2 – Central Beach Master Plan Public Improvement Project

The City Manager advised that the proposal presented today is as a result of modifications made after the concerns expressed at the October 16 meeting. He reviewed slides on this topic which are attached to these minutes.

The City Manager noted for Vice Mayor Rodstrom that the Florida Department of Transportation is aware of the City's plans with respect to streetscape improvements on the west side of A-1-A. Vice Mayor Rodstrom was concerned about potential issues with the State for those roadway areas that was under their jurisdiction. The City Manager thought that the City should consider taking jurisdiction over that segment of Las Olas Boulevard in this scope. It will in essence be re-built and consequently good for twenty years. Commissioner Rogers posed the idea of realigning the parking lot instead of the roadway. The City Manager explained that the goal is to expand the sidewalk. Vice Mayor Rodstrom indicated that a segment of Las Olas was just improved in 2006. She questioned doing some new so soon. Commissioner Rogers liked the plaza on A-1-A and the boardwalk experience from the Intracoastal to the beach. He referred to Slides 10 and 11 and suggested a loop be planned for pedestrians.

With a conservative estimate of 1.7 percent growth in CRA revenue, the City Manager advised that there would be sufficient funds to accomplish this. Vice Mayor Rodstrom thought there should be thought giving to the financial advisability of acquiring a portion of Las Olas Boulevard from a long-term standpoint.

Commissioner Roberts voiced favor in the concept in general. Vice Mayor Rodstrom cautioned about programming on the roofs of the garages and the plaza with respect to noise.

Mayor Seiler opened the floor for public comment.

Art Seitz, 1905 North Atlantic Boulevard, supported the idea. He advocated for more parking. With reference to the Las Olas Marina parking lot and the area next to the Las Olas bridge, the felt there should be floor to ceiling glass facilities with outside balconies and such. There should be a comprehensive plan prepared by experts. He drew attention to the Miami Beach marina. People like sunsets and they will gravitate to the Intracoastal if there are amenities.

Jack Newton, representing Venetion Condominium, commented that the Venetian is the next door neighbor to three of the City's projects, that being the International Swimming Hall of Fame, Oceanside Plaza and Option two for the marina expansion. They support all of the projects in the Sasaki study for this area, except the former garage proposal. There should be

public input concerning the realigning Las Olas Boulevard. He felt the idea of adding commercial to City properties only competes with existing retail. There is concern about the parking decks being three story. He referred to the open pavilion to seat 1,900 people and cautioned against anything like a Spring break atmosphere.

Fred Carlson, representing Central Beach Alliance, agreed with most items. He wanted to know what is planned for the grass area across from the International Swimming Hall of Fame (ISHOF). He elaborated upon scenarios that could negatively impact D. C. Alexander Park. He felt the area should be protected by the City deeming it park or green space.

Ina Lee, 2200 South Ocean Lane, complimented all City staff involved in the A-1-A cleanup after the recent storm. She felt the Las Olas area should be made iconic. She hoped it will be possible to events to be held at that location and event organizers not have to bring in their own equipment. She requested that the Beach Redevelopment Board be allowed to provide input.

There was no one else wishing to speak.

Mayor Seiler liked all of the items. With respect to the Las Olas Boulevard – A-1-A part of the plan, he liked the concept but wanted to make sure funds are being used in the most efficient manner and consequently wanted a little more input. There was consensus agreement. The City Manager indicated that staff will work with the Board (Beach Redevelopment Board).

BUS-3 – Southeast Florida Regional Climate Action Plan

Assistant City Manager Susanne Torriente highlighted information in Commission Agenda Memorandum 12-2434. The Regional Climate Action Plan conference will be held on December 6 and 7 in Jupiter. Mayor Seiler will serve on a panel with other mayors from the region. Cities are being asked to support the Mayors' Climate Action Pledge which affirms support for this framework and collaboration and agree to consider integrating elements of the plan into existing local work. To the extent possible Fort Lauderdale staff is already integrating elements of the plan into existing work. He also noted that Commissioner DuBose will be sending out a letter to the League of Cities to get municipal support for what the four counties have done. She will be addressing the Broward League of Cities on December 5.

Commissioner DuBose indicated that he presented this matter at the executive board level of the League of Cities and it was well-received.

Mayor Seiler opened the floor for public comment.

Charles King, 105 North Victoria Park Boulevard, was opposed to the City's police vehicle take-home policy. He felt it would save money and help the environment.

Fred Carlson, 625 Orton Avenue, elaborated upon the time and corresponding cost for police officers to transition from a private vehicle to a City patrol vehicle as well as on-site parking space needed. It is not so much about a gift to officers as it is about use of time.

There was no one else wishing to speak.

The Mayors' Climate Action Plan Pledge was distributed.

Continued on page 5.

BUS-4 – Proposed Lien Settlements – Special Magistrate and Code Enforcement Board Cases

There was no objection.

BD-1 – Communications to City Commission and Minutes circulated for period ending November 1, 2012

The City Clerk advised that the Education Advisory Board has requested their communication be deferred to November 20.

Planning and Zoning Board

Motion made by Mr. Witschen, seconded by Ms. Desir-Jean, to request that Staff develop a process that would not require Items such as 17R 12A and 18R12A, both of which relate to sign approval, to come before the Planning and Zoning Board (and also streamline the review process for residential uses in the residential office districts, which currently require the Board's review). Staff has prepared revised code language that will streamline the review process for signage in the Regional Activity Centers and anticipates making additional code improvements in the near future to address the communication in full.

The City Manager advised that staff has already drafted some preliminary language but first wanted to see if the Commission was in concurrence. The City Attorney advised that he has not yet seen the language. The City Manager believed the Board wanted to state they support streamlining the approval process. Mayor Seiler asked that this item be scheduled on a conference agenda.

BD-2 - Board and Committee Vacancies

Note: Please see regular meeting item R-10.

In response to Mayor Seiler, the City Clerk advised that legislation for expansion of the Citizens Committee of Recognition membership is on the regular meeting agenda, thus appointments would not occur until afterward.

Mayor Seiler asked that Donald Karney, III, be contacted to see if he is interested in serving as an alternate on the Nuisance Abatement Board.

Budget Advisory Board	Jonathan Macy (Commissioner Rogers- New)
Community Appearance Board	Kelly Blume (Mayor Seiler - New)
Education Advisory Board	Angela Sebaly (Commissioner Roberts - New)
Parks, Recreation and Beaches Board	Cate Gundlach (Commissioner Rogers - New)

Planned Unit Development Zoning District Advisory Committee	Peter J. Henn (Mayor Seiler - Reappointment) Catherine Maus (Vice Mayor Rodstrom - Reappointment) James C. Brady (Consensus - Reappointment) Leigh R. Kerr (Commissioner Rogers - Reappointment) Jason Scott Crush (Commissioner DuBose - Reappointment) Bradley Deckelbaum (Commissioner Roberts - New) Mary C. Fertig (Consensus - Reappointment)
Police and Firefighters Retirement System Board of Trustees	Jim Naugle (Consensus - Reappointment) Dennis Hole (Consensus – 7 th member recommended by the Board- Reappointment)
Sustainability Advisory Board	Darin Lentner (Commissioner Rogers - New)

BUS-3 – Southeast Florida Regional Climate Action Plan

Continued from page 3.

After having reviewed the Mayors' Climate Action Plan Pledge, there was consensus approval of it.

City Manager Reports

911 Dispatch and 800 MHz Radio System Conflict Resolution Update

The City Manager referred to the Broward County Administrator's letter (October 18, 2012) provided as Exhibit 1 to Commission Agenda Memorandum 12-2389. Their position has not changed since the October 2, 2012 meeting. Mayor Seiler believed it is slightly different; it totally defers the issue with the Sheriff to the City. He understood if it is not pursued by the Sheriff, it will not be pursued by them. The City Manager believed that the Sheriff feels he must pursue it. Assuming the City is not in agreement, he will inform the County. As to the conflict resolution process, the City Attorney advised that there are timing issues but they are flexible. Mayor Seiler suggested deferring to November 20, giving time to communicate with the Sheriff. There was no objection.

Bahia Mar Lease Negotiations

The City Manager advised that the planned unit development (PUD) that the Commission adopted on June 21, 2011 required a new lease agreement, which requirement was extended through November 6, 2012. The City is not close to an agreement with Bahia Mar (Blackstone) representatives. He recommended the Commission take no further action and as such the PUD would expire today. Mayor Seiler suggested a fifteen or thirty-day deadline to allow time for representatives to report back to the company. If it is not possible without adoption of a resolution, he preferred to simply allow it to expire today. The City Manager indicated that staff spoke with representatives on October 23 and Bahia Mar delivered their last and final offer to the City on October 26 which was provided to the Commission as Exhibit 2 to Commission Agenda Memorandum 12-2389. There was consensus approval as recommended.

America's Backyard (111 Properties)

The City Manager requested an additional extension to November 20, 2012 in order to finalize the settlement agreement. There was consensus approval.

Rain Tree; 424 SW 4 Avenue; Broward County Commission Public Hearing to Consider Designating as Historic – Marina Lofts

The City Manager drew attention to an additional item on this topic. The Commission received a copy of a letter from Henry Sniezek, Broward County Environmental Protection and Growth Management, dated October 29, 2012. This would have an impact on the proposed Marina Lofts development. Both the City and applicant would be required to secure approval from the County Commission before any relocation of the tree. There is a jurisdictional question. The City Attorney explained that the question is whether the authority to regulate trees designated by the County as historic is also the authority to so designate. In 1987 the City designated this tree as historic. Vice Mayor Rodstrom questioned whether the difference between the City and County regulations is significant. Mayor Seiler did not believe the County would prevail if someone was to file suit on the issue. Also, he questioned the County getting involved in such designations countywide. He did not think the City has anything it can do. Commissioner Rogers felt the City should respond to their letter and address it with respect to jurisdiction. He was concerned about adding another layer to the process. He did not believe the County has jurisdiction. Vice Mayor Rodstrom was concerned about repercussions. Broward County still has a lot to do with flex units in the downtown and a board that approves development in the downtown. Commissioner Rogers indicated that the City has an ordinance protecting this tree. Commissioner DuBose pointed out once it is designated by the County as historic, it would prohibit removal or relocation unless approved by the County Commission. The two ordinances could be in conflict. Mayor Seiler believed this takes away home rule from the City. The City Attorney advised that the County claims their jurisdiction is under their charter preemption language. The County relinquished that control when they certified the City's tree protection program, giving the City absolute power. In that waiver, the County reserved certain actions to their benefit and one of the actions is authority to regulate trees located on certain properties that he went on to delineate. The technical question is whether their reservation of the right to regulate property designated by them as historic was part of the retaining environmental authority. He confirmed for Commissioner DuBose that the County first has to designate, but after the designation, it meets the criteria in order to preempt the City. The City Manager commented that it becomes even more complicated, there was an index of historic trees in the county and this tree was not among those trees at the time the City was certified. In response to Commissioner DuBose, the City Attorney indicated that the County could amend their ordinance to take back the authority. Commissioner Rogers felt it should be clarified. He did not think the City should allow the County to take this power. Mayor Seiler felt the issue should be with the property developer. Commissioner Rogers suggested the City Attorney respond to the letter and staff address the County Commission at the public hearing. There was no objection.

Mayor Seiler opened the floor for public comment.

Jordana Jarjura, representing Marina Lofts, believed that this is clearly within the authority of the City. The intent of municipal certification is to avoid double overview of governmental agencies. The City has already deemed it protected. The County's designation would be unilateral. Only one of the three criteria would have to be met. She requested that the City respond to the letter and advise that it is not appropriate for the County to be reviewing this matter based upon the

City's certification and that preservation was contemplated in the certification approved by the County in 2003.

There was no one else wishing to speak.

City Commission Reports

Public Safety 800 MHz Radio System

Commissioner Roberts emphasized that this system is in a serious state at this time. The system is on the verge of failing. He felt this matter should be scheduled on the conference agenda. He was looking for a solution to allow the City to maintain the system without failure and give the City flexibility to move into consolidation or whatever is done with respect to Broward County. The City Manager believed that the County acknowledges responsibility for the 800 MHz radio system, but they are tying it to a settlement with the City involving the E911 dispatch, even though the charter provision (5.03) is clear that the County has responsibility for infrastructure. In the meantime the City has a \$4.1 million expense in order to keep the radio system up to speed. The question is how fast the City should pursue a resolution with the County that would make them responsible for that payment. If possible, Commissioner Roberts wanted to pursue all of the roads at the same time. Mayor Seiler requested both topics be scheduled on the November 20 conference agenda.

Contract Award for Marine Facilities Improvement Services from Engineer Control Systems Corporation; PUR-9 on Regular Meeting Agenda – Seawall Repair

Vice Mayor Rodstrom advised that the appointments to the Marine Advisory Board requested that the Board have an opportunity to review matters of this nature.

South Middle River Implementation Proposal; Unpaved Roads

Vice Mayor Rodstrom provided the implementation proposals for both the initial phase and Phase II for the Commission's information during the District II vacancy.

Hurricane Sandy; Beach Erosion

In response to Vice Mayor Rodstrom, the City Manager advised that the governor has asked the president to make a declaration. The City is providing cost information to Broward County Emergency Management. If eligible, the City will seek reimbursement.

Bike Lane Pavement Coloring

Vice Mayor Rodstrom provided examples of bike lane pavement coloring options from the A-1-A Greenway Study. These options have been approved by the Florida Department of Transportation. She had received a complaint about one in the downtown that is too bright.

Open Space 145 - (Middle River Terrace)

Vice Mayor Rodstrom urged that this property be maintained as open space. Broward County has offered two options. She referred to information from Don Burgess of Broward County Natural Resources Planning and Management Division. As to purchasing, the County would pay for one appraisal to determine the fair market value. If it is under \$500,000 and the City chooses to negotiate with the property owner or contract purchaser, the County will bring forward an amended interlocal agreement reflecting the new amount. If it is in excess of \$500,000, the County would request that the City pay for a second appraisal. The City could negotiate based on the average of the two appraisals. Although she did not agree with it, the third option would be to terminate the idea. She asked the Commission to consider moving forward with an appraisal. There is no guarantee that the funds that would be used for this property would still go to Fort Lauderdale if this is not pursued for Middle River Terrace. She offered to furnish pertinent emails. The City Manager indicated that there is a question whether the original purchase agreement is in force. The City Attorney indicated that the owner with whom the City had a contract was foreclosed upon. The contract for sale was assignable but it was not assigned. He thought the County's position that the City pay for both appraisals. Vice Mayor Rodstrom agreed to email the information to the Commission and City Attorney.

Commissioner DuBose requested the City Attorney provide a summary of this matter. Mayor Seiler did not think that the contract survived the foreclosure. He indicated was contemplated to be on the November 20 conference agenda.

Fort Lauderdale High School; Public Use of Swimming Pool

In response to Vice Mayor Rodstrom, the City Manager that he is working on this matter. The City is self-insured, but the request is for them to be furnished with an insurance policy and to be named as an additional insured.

The meeting adjourned at 3:28 p.m.



CROS – City Resource Optimization Solution

City of Fort Lauderdale
City Commission Meeting
November 6, 2012

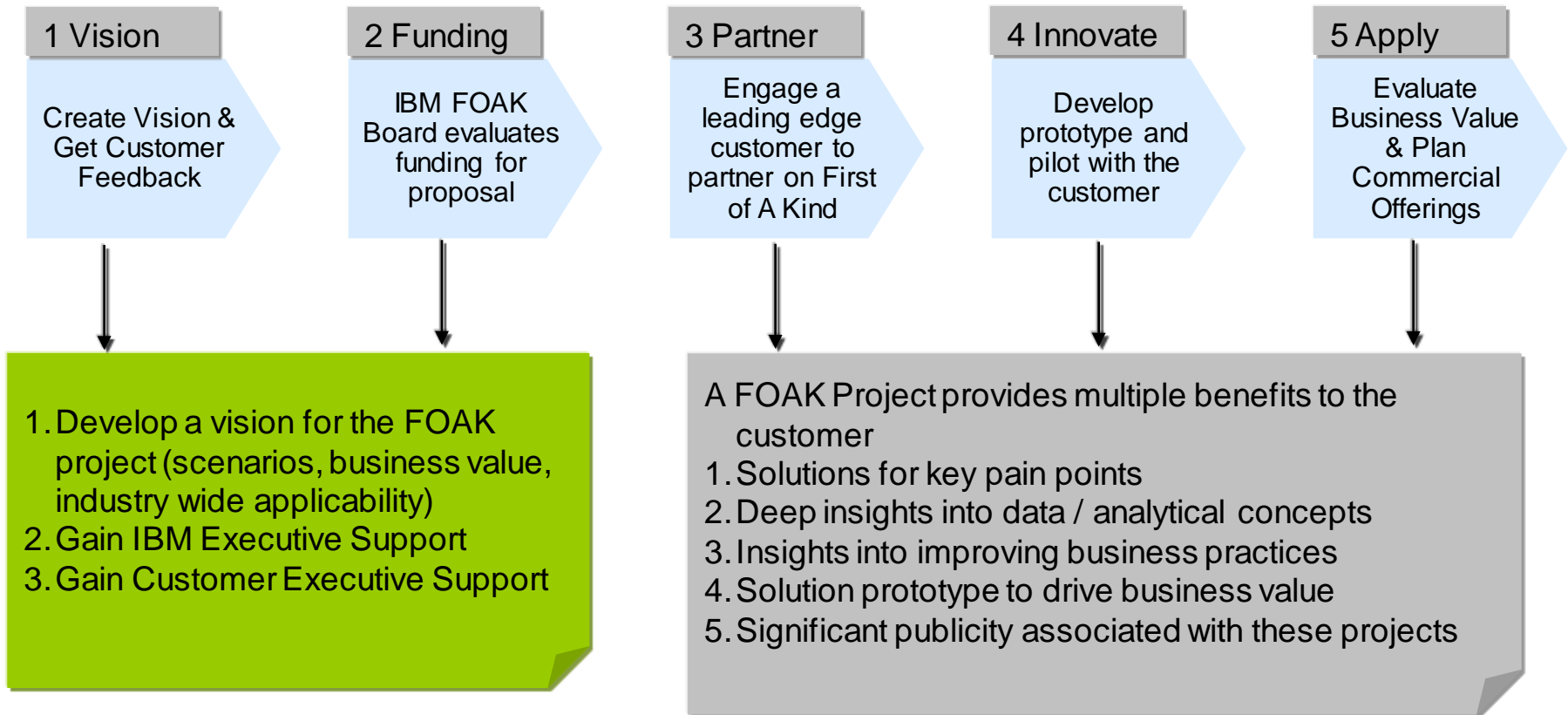
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Agenda

- **IBM's Smarter Cities Campaign**
- **IBM Research's "First of A Kind" Partnership Program**
- **Details of CROS – City Resource Optimization Solutions Project for Fort Lauderdale**

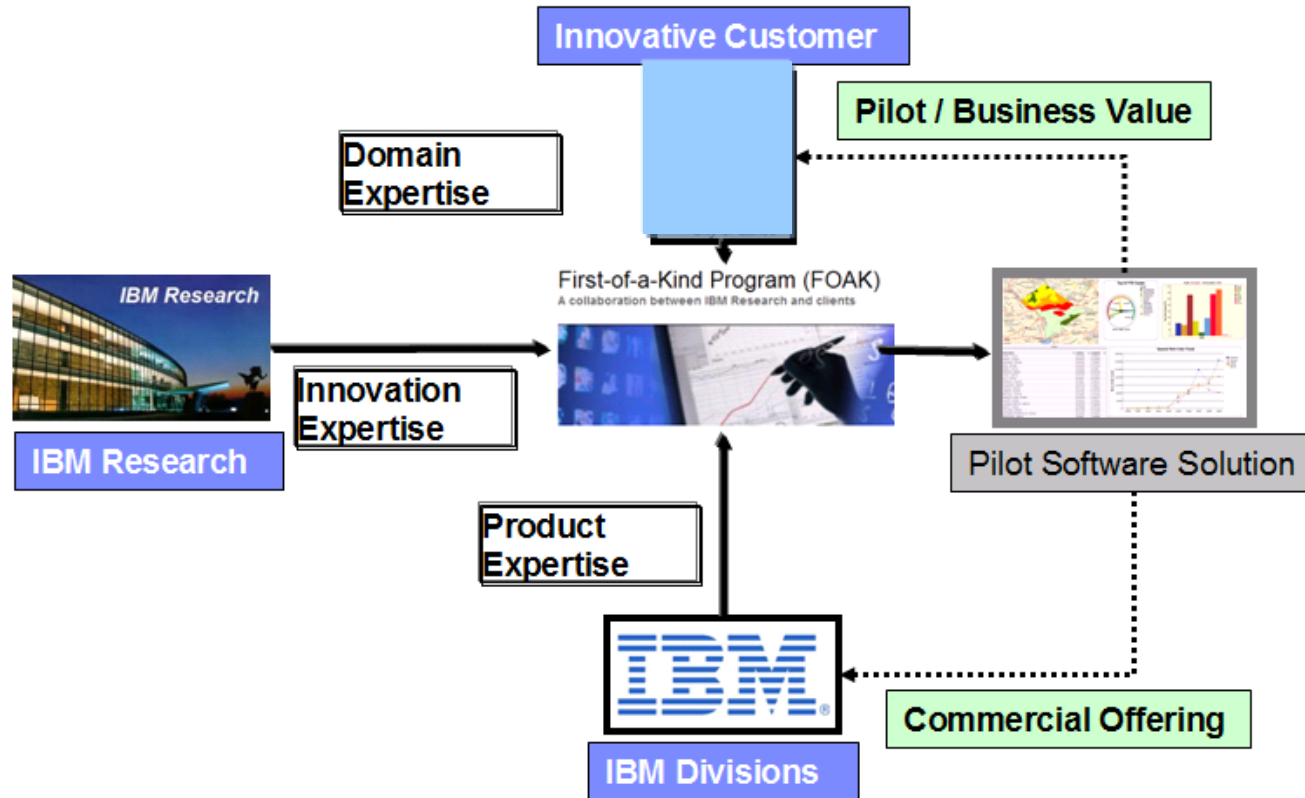
Partnering with IBM Research on “First of A Kind -FOAK” Innovations



Funding Mechanism:

- IBM Contributes 80+% of the cost of the project
- IBM brings to bear deep experience / technology / experts in analytics, predictive modeling, optimization, GIS, Routing, Software Engineering
- Partner contributes nominal amount to support project management / travel
- Partner contributes industry expertise / data to guide the project towards high business value.

FOAK projects are a win-win. They enable IBM to partner with industry leaders and customers get a significant opportunity to address a key pain point with “break through” thinking supported by advanced technology solutions



“First of a Kind (FOAK)” projects are IBM grants aimed at creating repeatable solutions to industry wide challenges in collaboration with selected customers

Customer Benefits

- Address a key priority
- License to solution
- Industry Leadership
- Cost Saving
- Improved Service
- Visibility

Focus Area of the FOAK

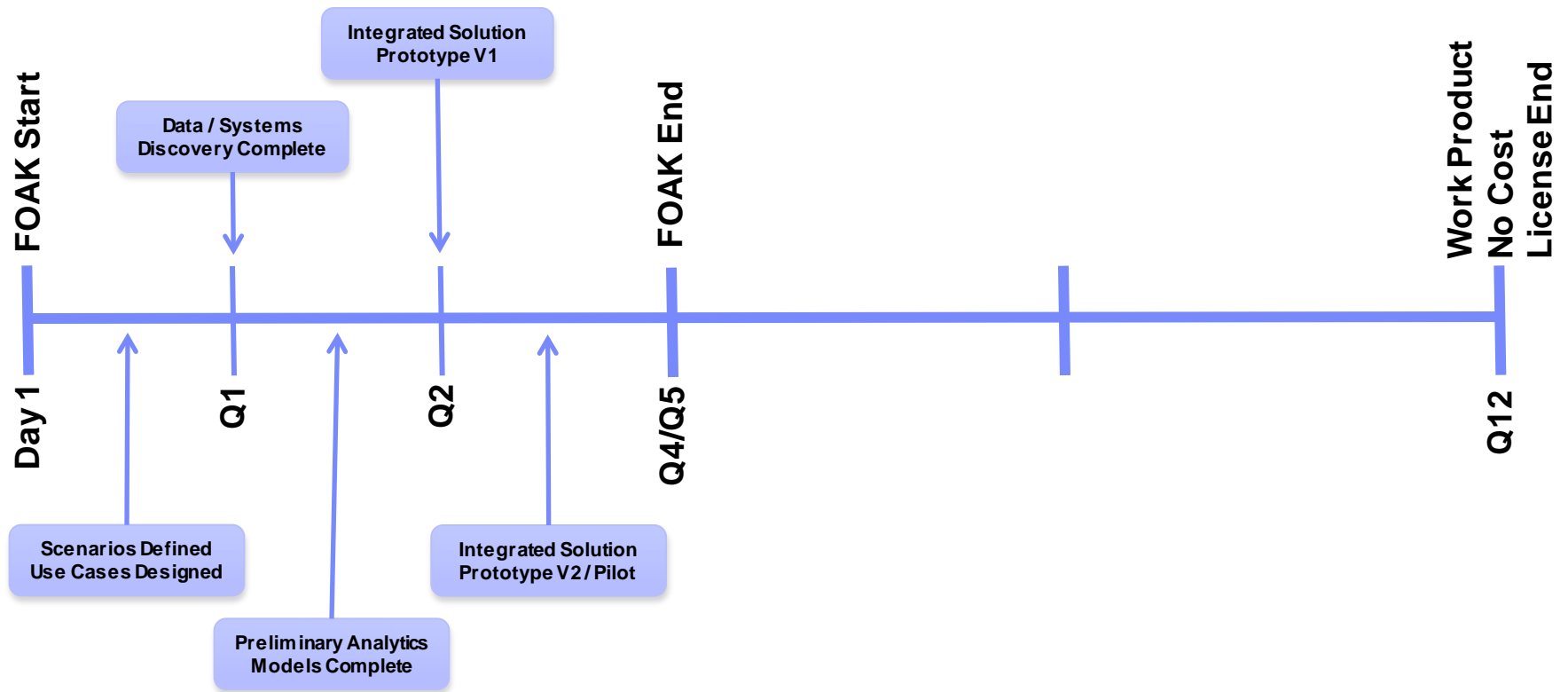
Jointly Identified Innovation Area #1

Jointly Identified Innovation Area #2

Jointly Identified Innovation Area #3

Additional Scenarios

Typical FOAK Project Timeline



Innovation Track: From concept to solution



Prioritized Innovation Areas

Potential use case list

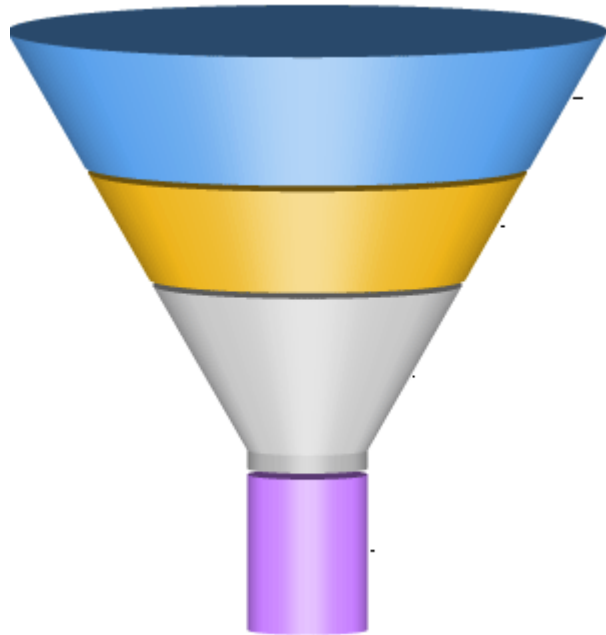
15 Concepts

12 Concepts

7 Concepts

5 Concepts

3 Concepts



Customer Solution



Data Discovery

Preliminary Analytics Tests

Analytics Models

Integrated Solution Prototype

Pilot and Refinement

FOAK T's & C's

- IBM invests ~80% of the cost of the project
- IBM owns the IP on the FOAK work product
- Customer gets a license to use the FOAK work product (object code) for 2 years
- The FOAK is confidential, any disclosure should be mutually agreed.
- The Work Product is experimental and is licensed on an "AS IS" basis, without warranty of any kind.
- Neither of party warrants or assumes any liabilities in connection with the accomplishment or completion of any Project activities.

- FOAK Solution could have
 - Hardware
 - COTS IBM Software
 - Partner Software
 - FOAK-Work Product (new code written during the FOAK engagement period)

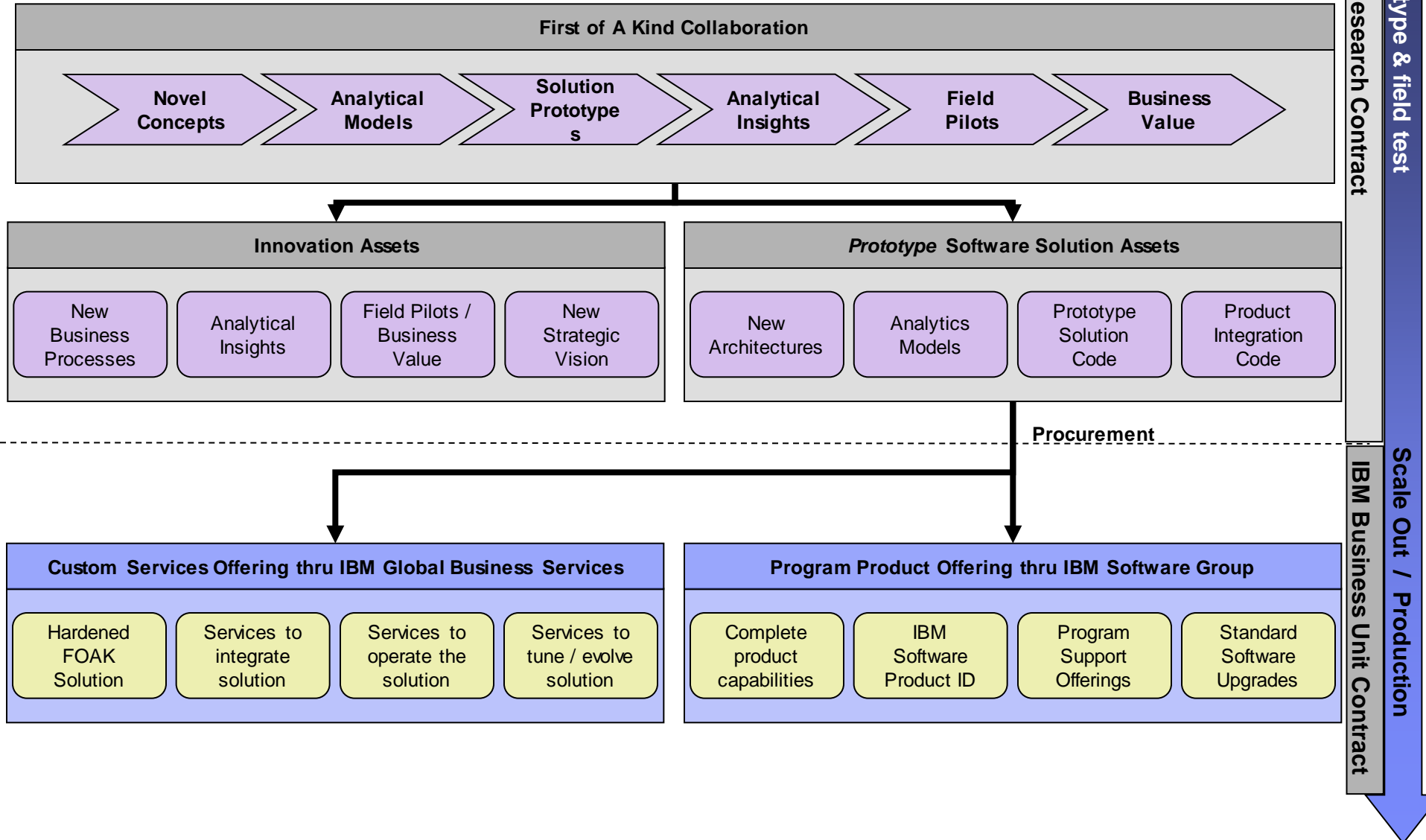
FOAK Solution Components / Procurement Options after FOAK

Component	During the FOAK project	After the FOAK project
Hardware & Storage	<ul style="list-style-type: none">Supported by systems at IBM Research (\$0)	<ul style="list-style-type: none">Hardware needs to be procured by customer.
Commercial products (IBM)	<ul style="list-style-type: none">Supported by IBM internal development licenses (\$0)	<ul style="list-style-type: none">Software needs to be procured by customer
Commercial products from partners	<ul style="list-style-type: none">Depends on the specific partners. Generally IBM has alliances which allow us to use partner licenses for free during development (for example ESRI).	<ul style="list-style-type: none">Software needs to be procured by customerPartner products will typically be based on the customer environment
FOAK Solution Code (Work Product)	<ul style="list-style-type: none">\$0 – this code is tailored to the requirements of customer	<ul style="list-style-type: none">\$0 for 2 years after the completion of the FOAK

FOAK SOW's are written at a higher level to provide flexibility to the collaborating teams: Example milestones extracted

Date	Milestone
May 1 st 2011	Project Kickoff
1 Quarter (90 days) after start	Scenarios Defined, Preliminary Use Cases Designed
2 Quarters (180 days) after start	Data / System Discovery, Complete
3 Quarter (270 days) after start	Preliminary Analytics Models Complete Integrated Solution Prototype – V1 Pilot Planning Complete
4 Quarter (360 days) after start	Field Pilot Business Value Study

Transitioning from FOAK to production



Example FOAK Projects

■ Government Industry: City operations Organizer and Planner

- ◆ Customer: City of Minneapolis
- ◆ Enable cross department coordination through massive data sharing and cross referenced
- ◆ Configurable analytics across multiple data sources
- ◆ Support for city operations planning

■ Government Industry: Smart Vision Suite

- ◆ Integrated video surveillance and security system
- ◆ Detects patterns and generates alerts to enable real-time decision-making and post-event correlation of people and activities
- ◆ Improves operator effectiveness, reduces workload & increases security
- ◆ Link: [Smart Surveillance](#)

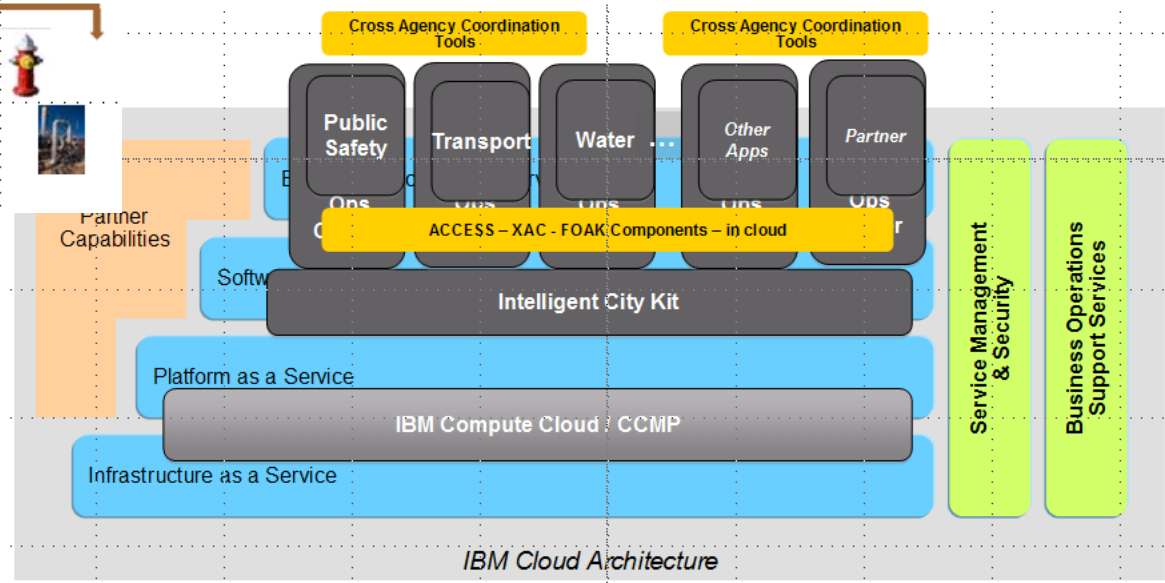
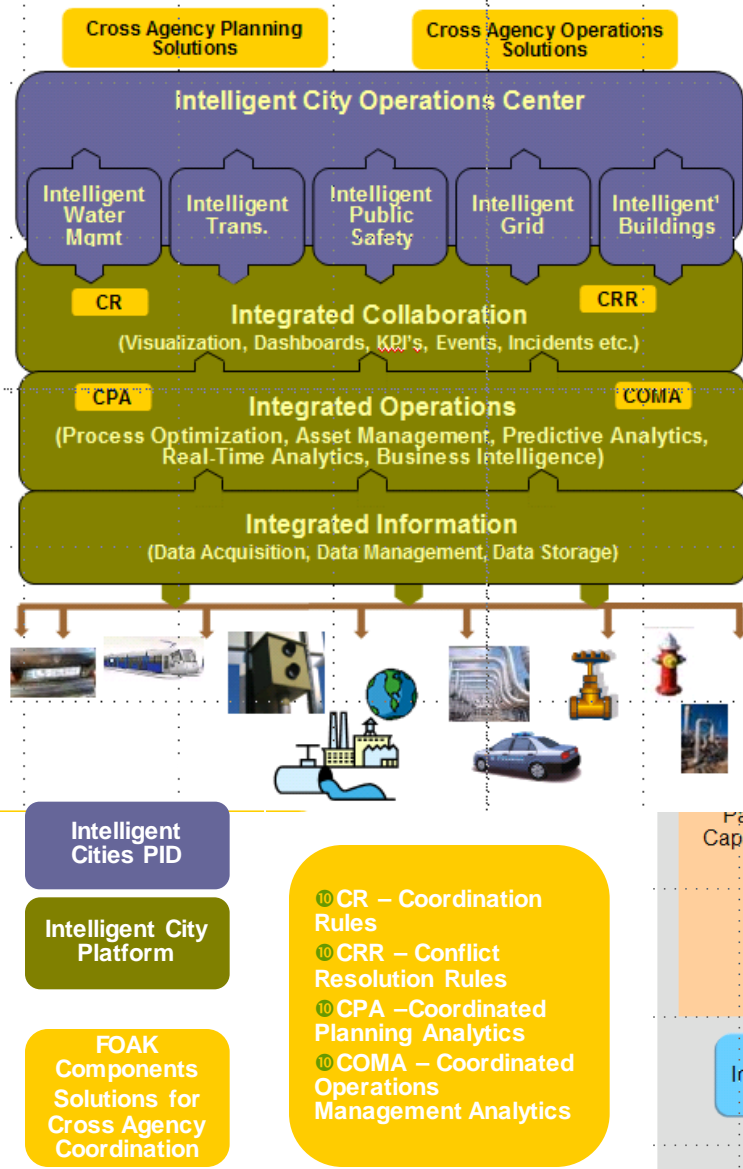
■ Energy and Utilities: Analytics Driven Asset Management

- ◆ Customer: DC Water
- ◆ Optimizes maintenance work thru efficient scheduling and planning
- ◆ Predicts risk of asset failure, enabling proactive maintenance
- ◆ Analyzes asset usage patterns
- ◆ Link: [ADAM: Analytics Driven Asset Management](#)

■ Consumer Products: Supply Chain Sustainability Management

- ◆ Customer: McKesson
- ◆ Integrates models of quantitative relations across the supply chain
- ◆ Enables scenario based, balanced decision making: sustainability, financial and environmental as prioritized by the enterprise
- ◆ Minimizes carbon dioxide emissions and distribution costs.
- ◆ Link: [Supply Chain Sustainability Management](#)

In Minneapolis, we just completed a FOAK on Cross Agency Coordination



Project Summary

- **Most city agencies are under increasing pressure to provide the same or higher levels of service with less resources. A significant fraction of the resource spend is consumed by the cost of human capital in support services. It is critical to optimize city resources for a more effective operation planning and tracking.**
- **CROS project is aimed at developing tools and methodologies leveraging data and analytics to support city resource optimization across city agencies. CROS will develop a broad range of novel analytics to support effective policing:**
 - ◆ Situation Assessment Analytics
 - ◆ Advanced Predictive Analytics Engines
 - ◆ Resource Optimization Policies
 - ◆ Tactics Recommendation
 - ◆ Situation Awareness Analytics
 - ◆ Dynamic Service Management
 - ◆ Knowledge Capture and learning
- **The concepts are applicable across all city departments. We expect to develop these concepts in the context of public safety. The solutions, models and analytics can be carried over to other city operations, including transportation and public works thru further engagements**

Example of Police Department optimization challenge

The inability of the department to dedicate “sufficient attention” to all of the demands placed upon it is generally attributed to a lack of manpower. However, HPD notes that “it could also be associated with a disproportionate allocation of personnel to address identifiable work demands, as well as an inability to effectively manage the time available to address work demands. There is also the issue of efficiency. Process engineering is yet another factor in determining if work is being performed efficiently without sacrificing responsiveness of quality.”

Excerpts from the City of Houston RFQ

■ Three types of analysis:

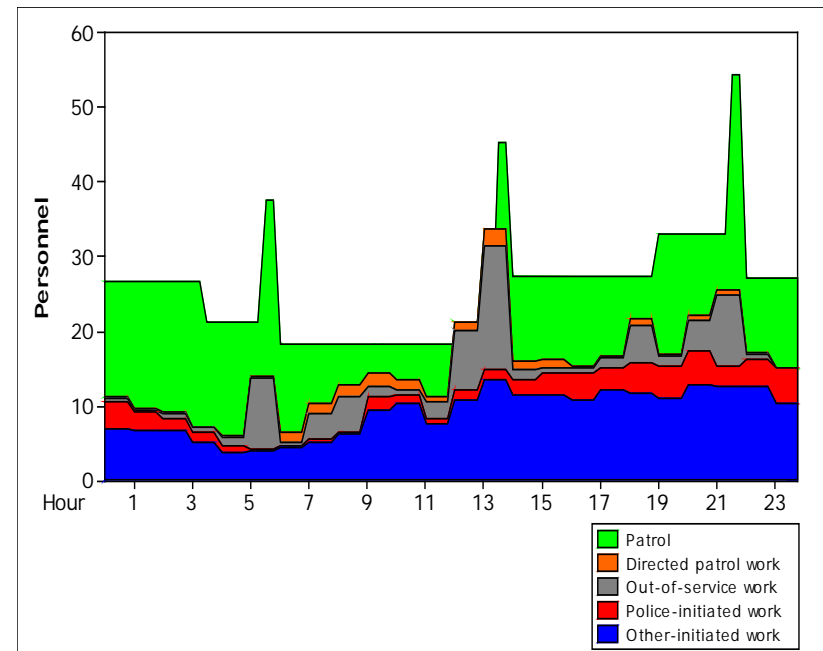
- ◆ **Demand Analysis:** what are the current work demands?
- ◆ **Capacity Analysis:** how much capacity is currently in place to handle that demand?
- ◆ **Performance Analysis:** to what extent are desired service levels being achieved?

■ This quantification of work demands must pay specific attention to the diversity of work demands placed on each operating unit

■ Need to rely on actual performance data at the individual and unit level

CROS will develop analytical tools to support city operations with the goal of optimizing city resources. Initial focus will be on creating solutions for police operations optimization, including advanced predictive police demand analysis, optimization planning, situation awareness analytics, and tracking and evaluation learning

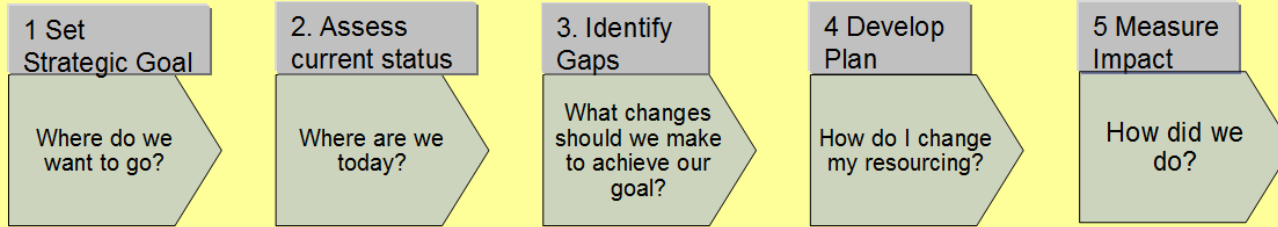
Core components of CROS can be further leveraged for other City Agencies



Workload and Capacity Analysis for Field Operations

Police operations planning – two use cases

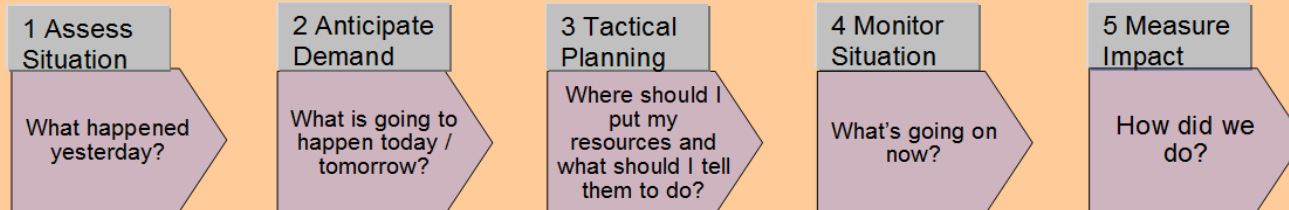
Strategic Planning (Annual / Monthly)



Users

Police chief
Precinct Commander
....

Operational Planning (Day to Day)



Users

Precinct Commander
Sergeant
Shift Supervisor
...

Pre Roll Call:

Commander uses the tool before the daily roll call meeting to develop a proposed plan

Roll Call:

Commander uses the tool to communicate and refine the plan during roll call meeting with his staff

After Action Review:

Commander use the tool to assess effectiveness of tactics / learn and to communicate changes in tactics to staff

Codefor Review:

Commanders use the tool to demonstrate effectiveness of operations

Key Business Value

■ Improve strategic planning

- ◆ Help in long term resource planning: optimized staff training and skill development
- ◆ Reduce staffing cost
- ◆ Reduce overtime

■ Improve day to day operational planning

- ◆ Improvements in Quality of Service in law enforcement with faster Response times
- ◆ More effective resolution of emerging issues
- ◆ Dynamic beat design
- ◆ More effective officer performance tracking and metrics
- ◆ More effective crime reporting
- ◆ Improve future resource optimization

CROS Analytics Solution Architecture

CROS FOAK
New Research

Anticipate Demand

Situation Assessment
Analytics Engine



Weather

Economic
Conditions

Service Demand Influencers

Integrated Service
Demand Prediction
Engine



Service Drivers

911 /
CAPRS

Special
Events

Criminal
Release

Anticipated + Actual Service Demand
911, CAPRS, Self Initiated,

Plan Services

Patrol

Investigative

Capacity

Resource Optimization
Engines



Service Delivery Plan

Tactics Recommendation
Engine



Tactics Database

Issues

Mitigations

Monitor & Adapt



Situation Awareness Engine



Dynamic Service Request
Manager



Adaptive Police
Operations

Learn & Improve

Measure & Learn



Crime Stats



Tactics
Effectiveness
Metrics



Tactics Learning
Engine



Event Rules

Intelligent Operations Center

Model Management

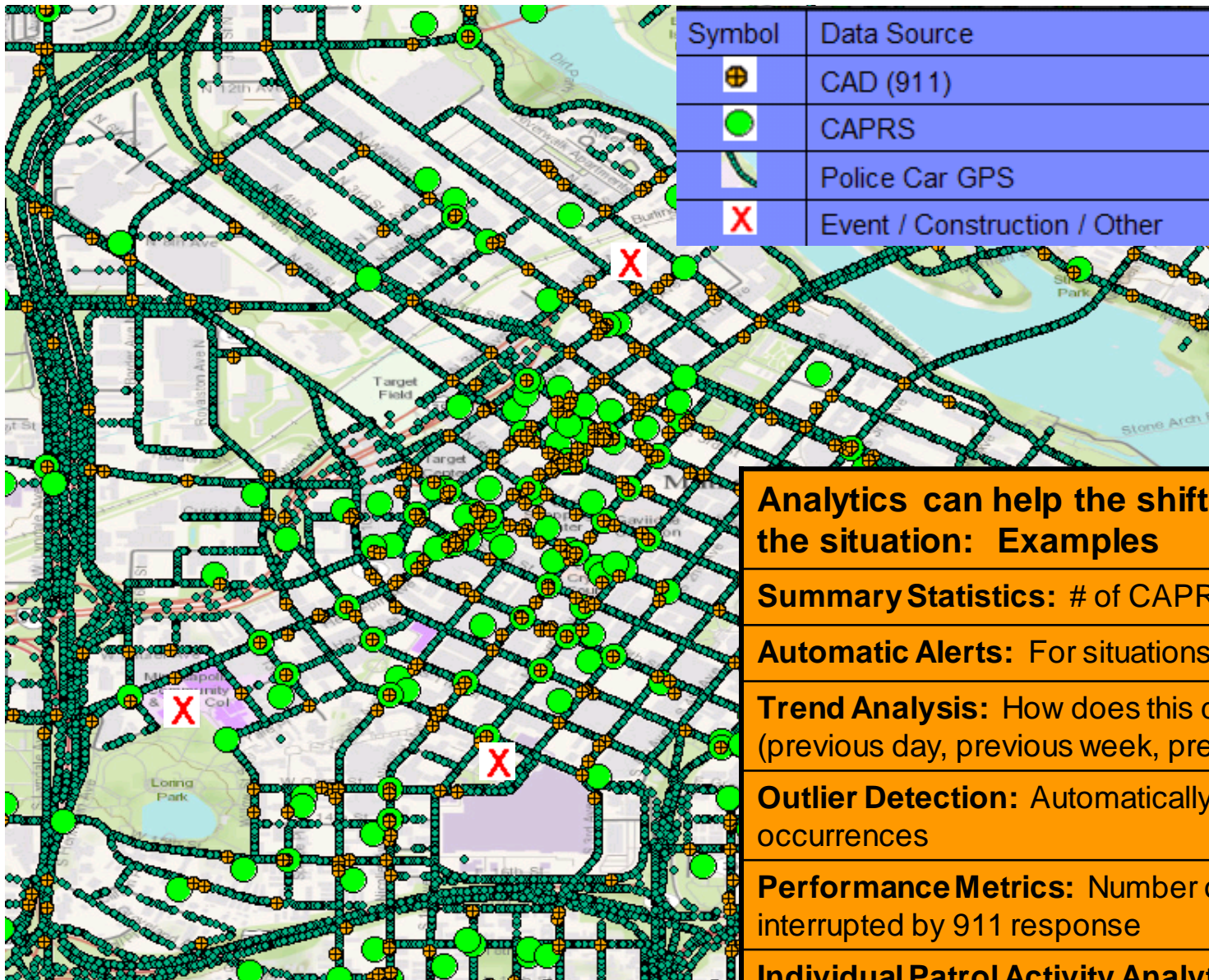


Standard Operating Procedures

Assess the Situation

1 Asses
Situation

What happened
yesterday?



Analytics can help the shift supervisor assess the situation: Examples

Summary Statistics: # of CAPRS/CAD by type

Automatic Alerts: For situations of interest

Trend Analysis: How does this day compare to (previous day, previous week, previous month)

Outlier Detection: Automatically flag unusual occurrences

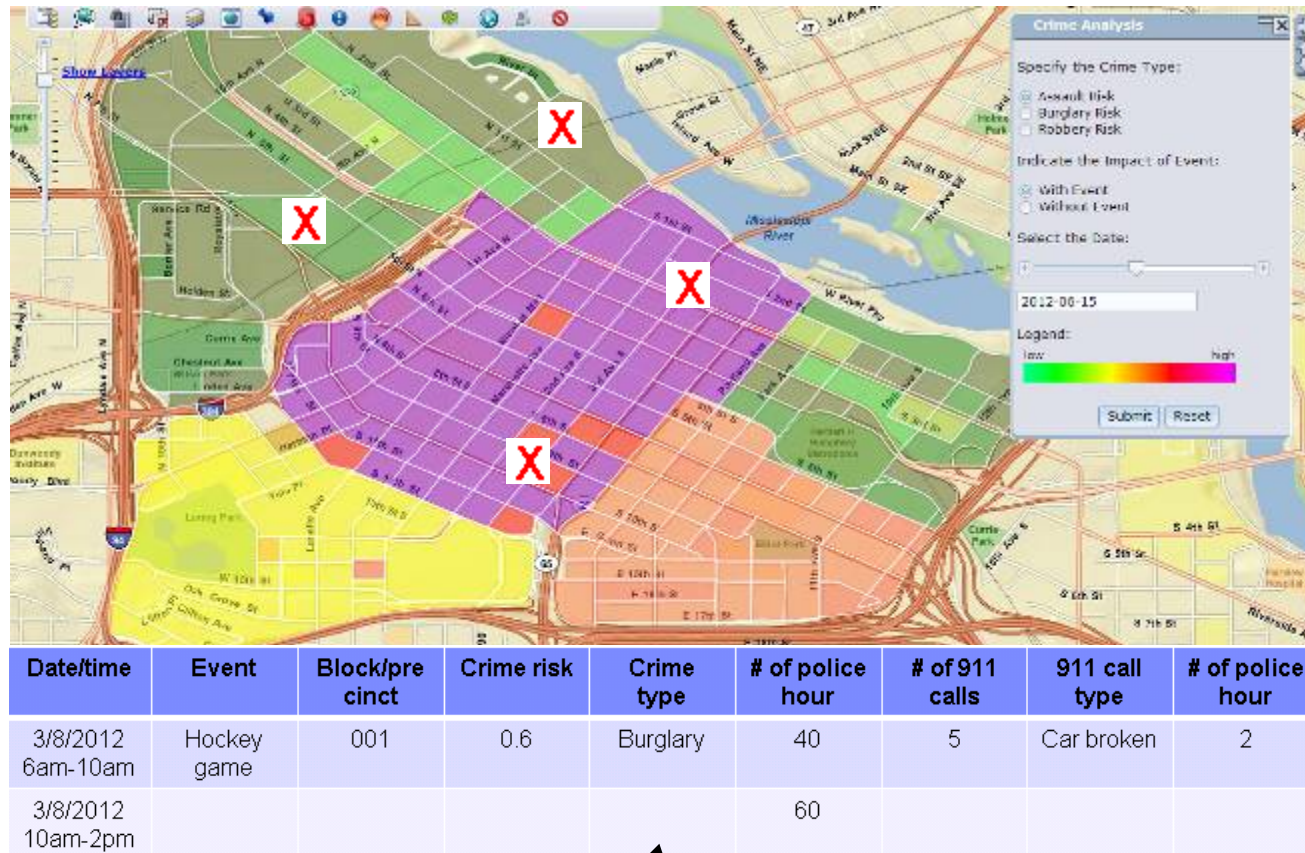
Performance Metrics: Number of investigations interrupted by 911 response

Individual Patrol Activity Analytics:

Predict Demand for Service

2 Anticipate Demand

What is going to happen today / tomorrow?



Predictive Models

Historical
Crime Data

Weather Data

911 Data

Event Data

Transportatio
n Data

Economic
Indicators

Existing
Predictors

Predictive Models can be developed using several data sources

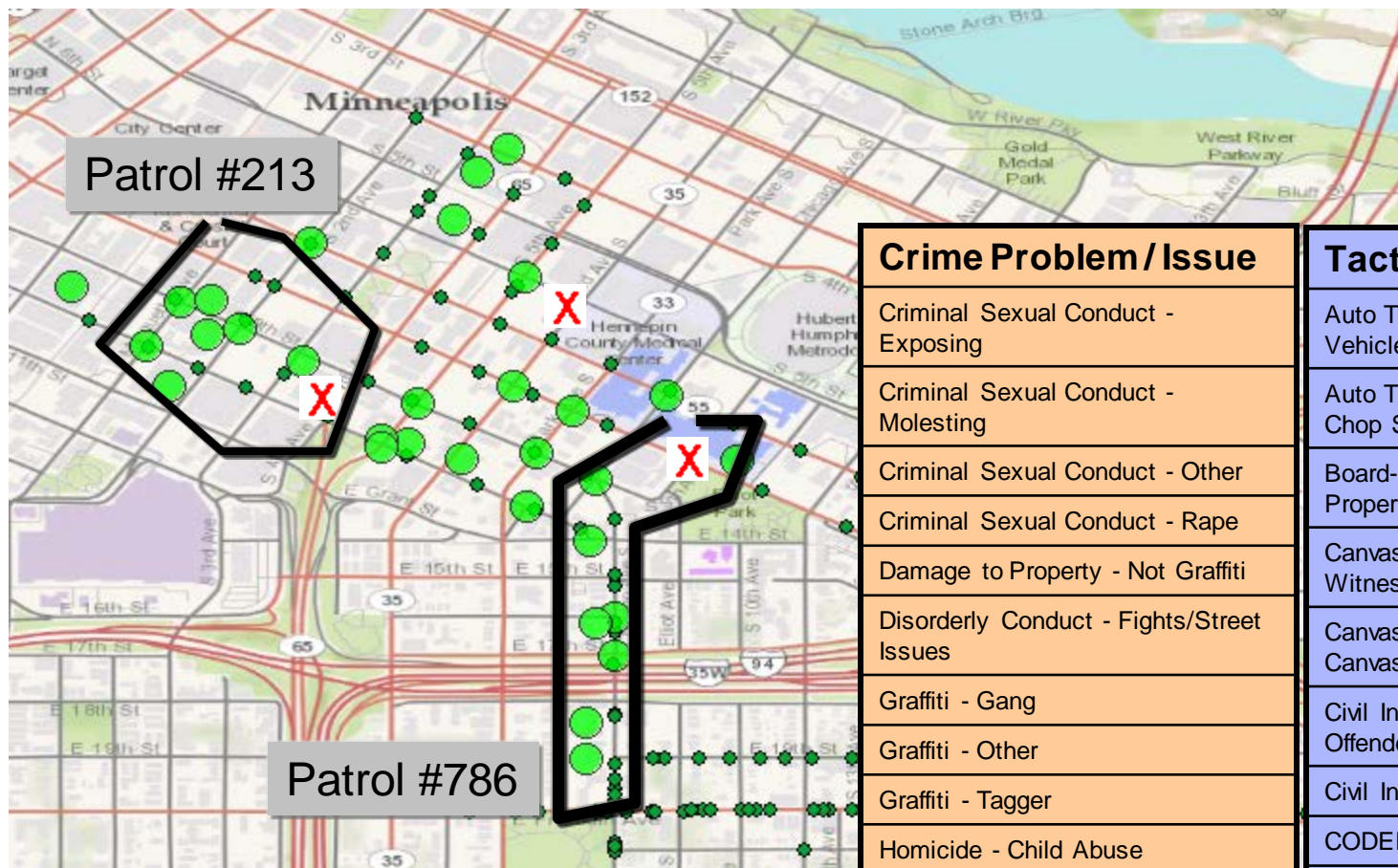
3 Tactical Planning

The map displays the Minneapolis area with various streets and landmarks. Two patrol areas are highlighted with black outlines. Patrol #213 is located in the northwest, near the City Center and Hennepin County Medical Center. Patrol #786 is located in the south, near the Hubert H. Humphrey Metrodome and Currie Park. Green circles represent incidents, and red 'X' marks represent specific locations of interest.

Tactical Planning – Recommend Tactics – Create a Job Plan

3 Tactical
Planning

Where should I
put my
resources and
what should I tell
them to do?



Crime Problem / Issue

Criminal Sexual Conduct - Exposing
Criminal Sexual Conduct - Molesting
Criminal Sexual Conduct - Other
Criminal Sexual Conduct - Rape
Damage to Property - Not Graffiti
Disorderly Conduct - Fights/Street Issues
Graffiti - Gang
Graffiti - Other
Graffiti - Tagger
Homicide - Child Abuse
Homicide - Domestic Related

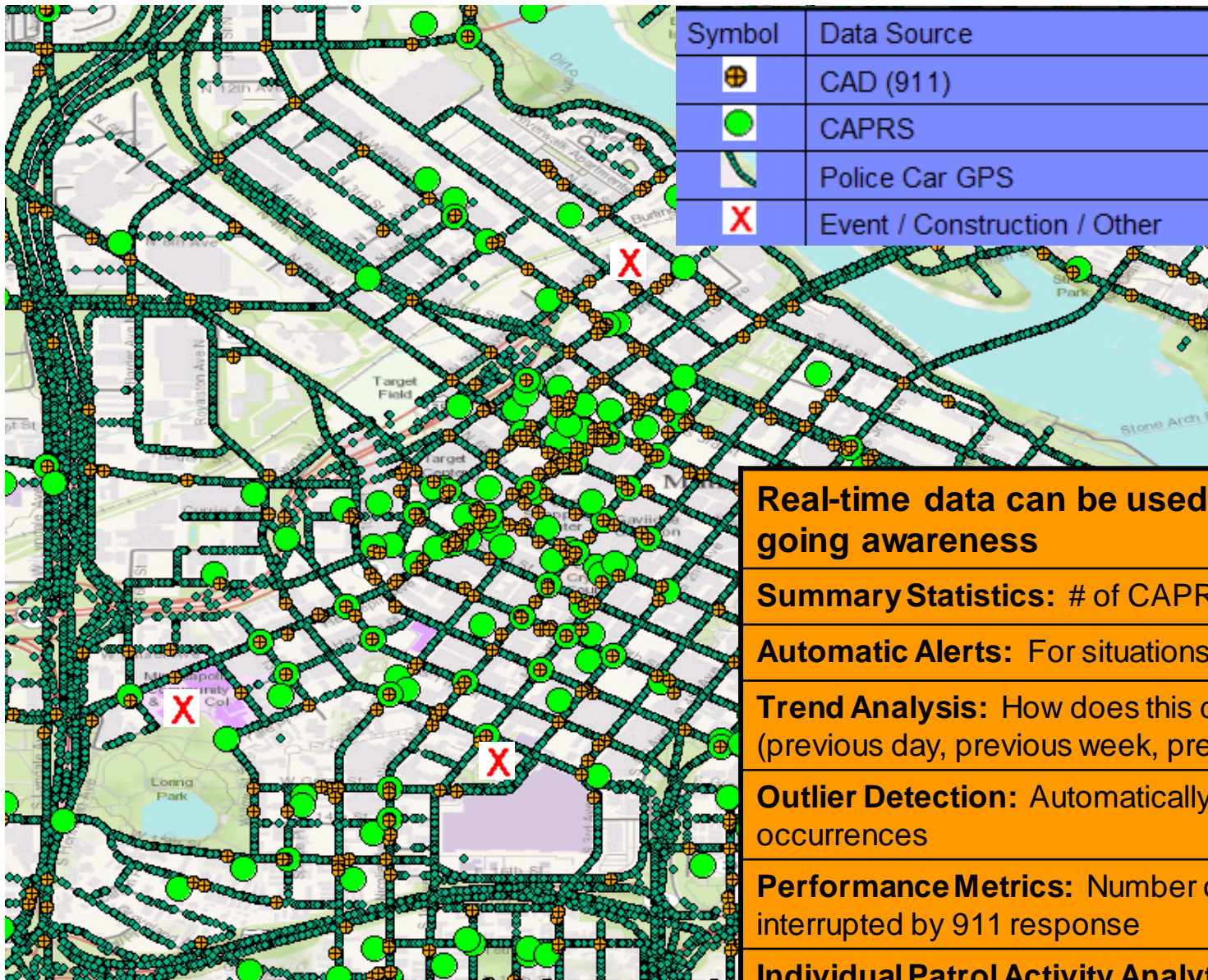
Tactics

Auto Theft Reduction Unit - Bait Vehicle Placement
Auto Theft Reduction Unit - Chop Shop Investigation
Board-Up Building/Problem Property
Canvass - General Canvass for Witnesses
Canvass - Targeted Canvass/Re-Canvass
Civil Injunction - Chronic Offender Focused
Civil Injunction - Gang Focused
CODEFOR Unit - Data Analysis
CODEFOR Unit - Mapping
Collaboartion - Federal Protective Police
Collaboration - Hennepin County Sheriffs Office

Monitor Situation

4 Monitor
Situation

What's going on
now?



Real-time data can be used to provide on going awareness

Summary Statistics: # of CAPRS/CAD by type

Automatic Alerts: For situations of interest

Trend Analysis: How does this day compare to (previous day, previous week, previous month)

Outlier Detection: Automatically flag unusual occurrences

Performance Metrics: Number of investigations interrupted by 911 response

Individual Patrol Activity Analytics:

Measure Impact

5 Measure
Impact

How did we
do?

Week-to-Date (2/28 - 3/5)						
CRIME	2012	2011	1yr % Chg	2012	2010	2yr % Chg
Homicide	0	1	-100.00%	0	0	#DIV/0!
Rape	6	5	+20.00%	6	10	-40.00%
Robbery	19	18	+5.56%	19	29	-34.48%
Aggravated Assault (Non Domestic)	19	12	+58.33%	19	19	+0.00%
Domestic Aggravated Assault	13	8	+62.50%	13	9	+44.44%
Total Violent Crimes	57	44	+29.55%	57	67	-14.93%
Burglary	47	54	-12.96%	47	51	-7.84%
Larceny (Other Theft)	98	116	-15.52%	98	99	-1.01%
Theft From Motor Vehicle	33	47	-29.79%	33	46	-28.26%
Auto Theft	32	27	+18.52%	32	29	+10.34%
Arson	0	0	#DIV/0!	0	1	-100.00%
Total Property Crimes	210	244	-13.93%	210	226	-7.08%
Total Part I Crimes	267	288	-7.29%	267	293	-8.87%
Week-to-Date (2/28 - 3/5)						
ARREST	2012	2011	1yr % Chg	2012	2010	2yr % Chg
Homicide	0	0	#DIV/0!	0	0	#DIV/0!
Rape	0	0	#DIV/0!	0	3	-100.00%
Robbery	7	8	-12.50%	7	3	+133.33%
Aggravated Assault	17	10	+70.00%	17	18	-5.56%
Burglary	2	4	-50.00%	2	9	-77.78%
Larceny	31	29	+6.90%	31	13	+138.46%
Auto Theft	4	1	+300.00%	4	2	+100.00%
Arson	0	0	#DIV/0!	0	0	#DIV/0!
Total Violent Crime Arrests	24	18	+33.33%	24	24	+0.00%
Total Part I Arrests	61	52	+17.31%	61	48	+27.08%
Total Part II Arrests	310	267	+16.10%	310	306	+1.31%
Total UCR Arrests	371	319	+16.30%	371	354	+4.80%
Total All Arrests (UCR & NON-UCR)	873	775	+12.65%	873	868	+0.58%

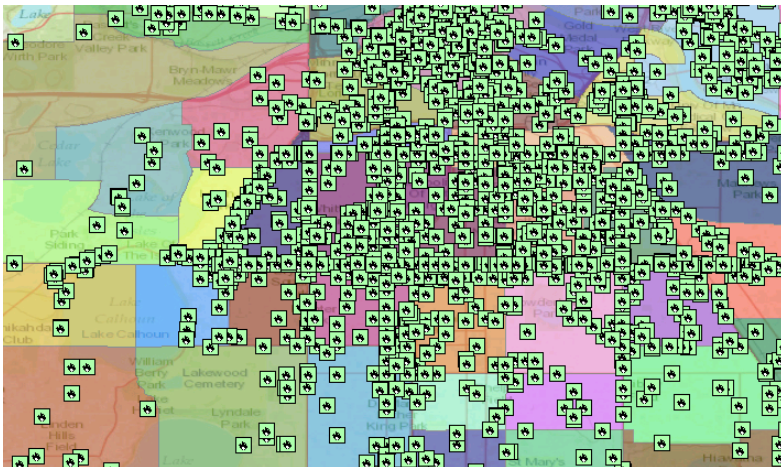
Today's metrics used in CodeFor

New Metrics on tactics effectiveness

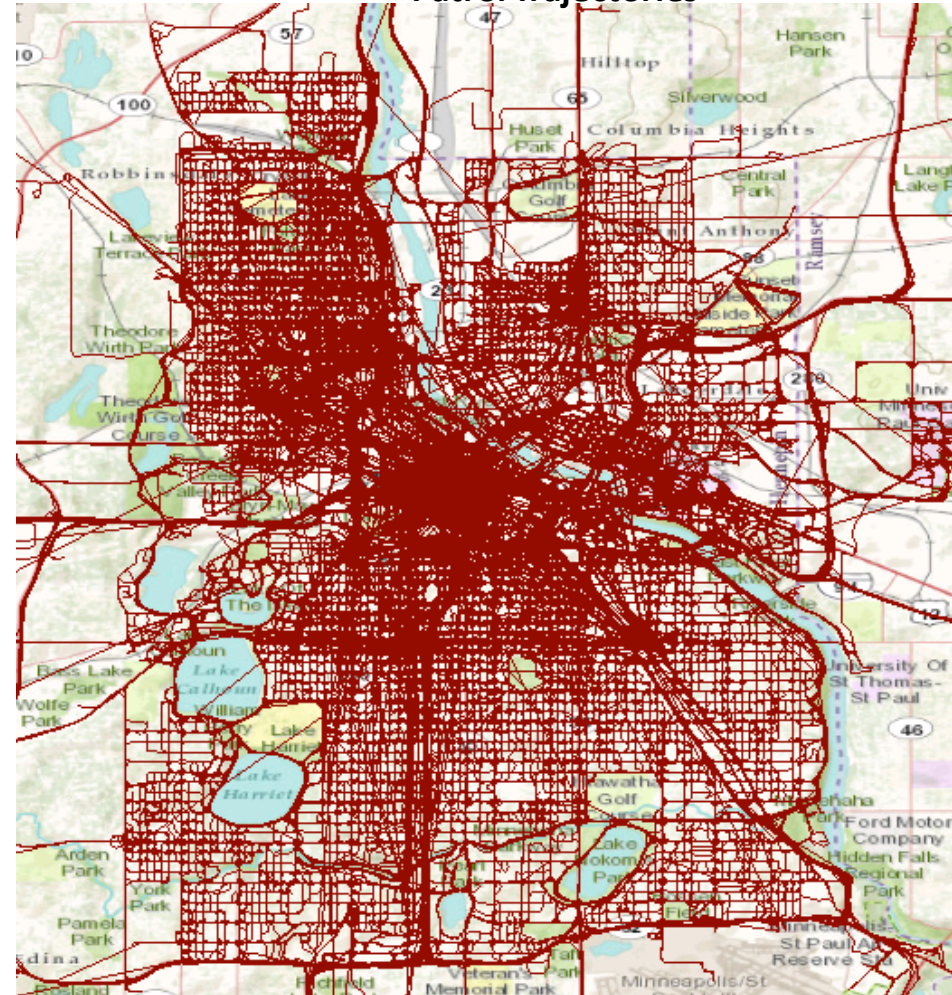
1. Tactic usage reports
2. Tactic combination matrix
3. Effectiveness measures (link back to CAPRS?)

Understanding Patrol Activity

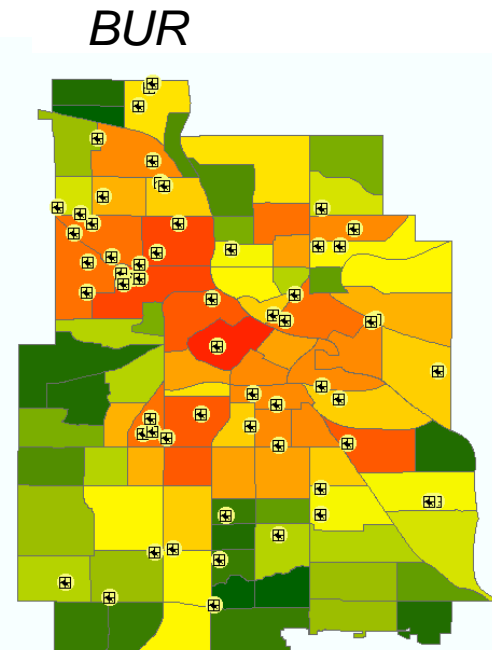
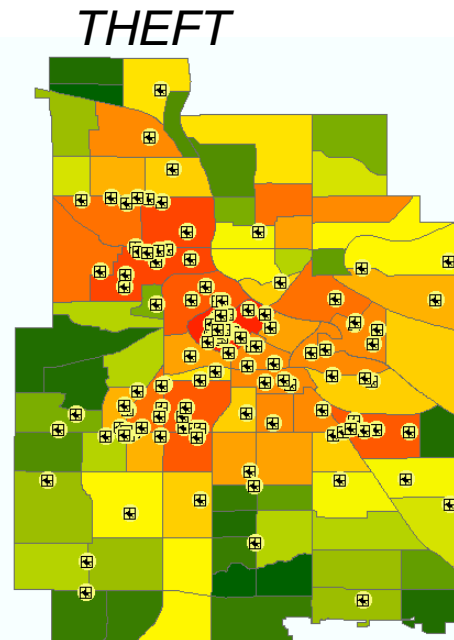
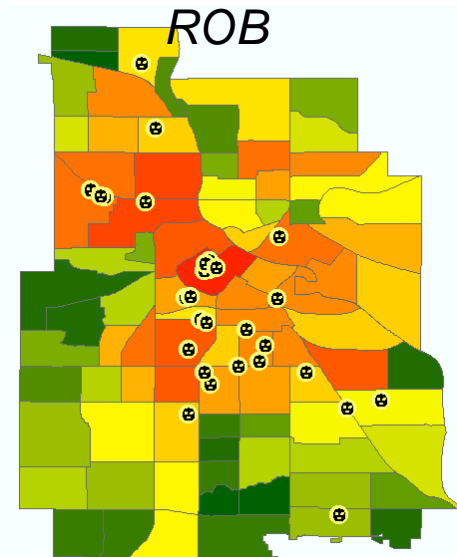
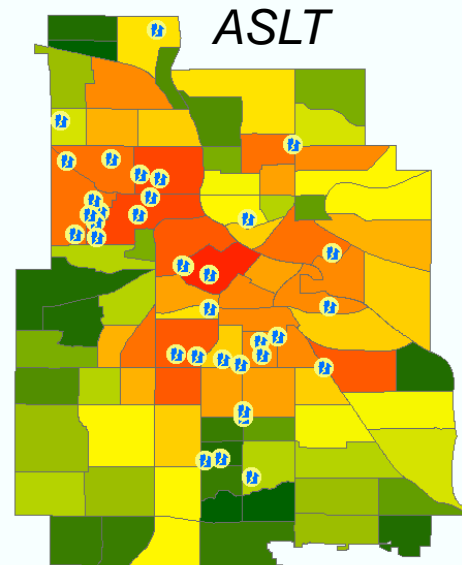
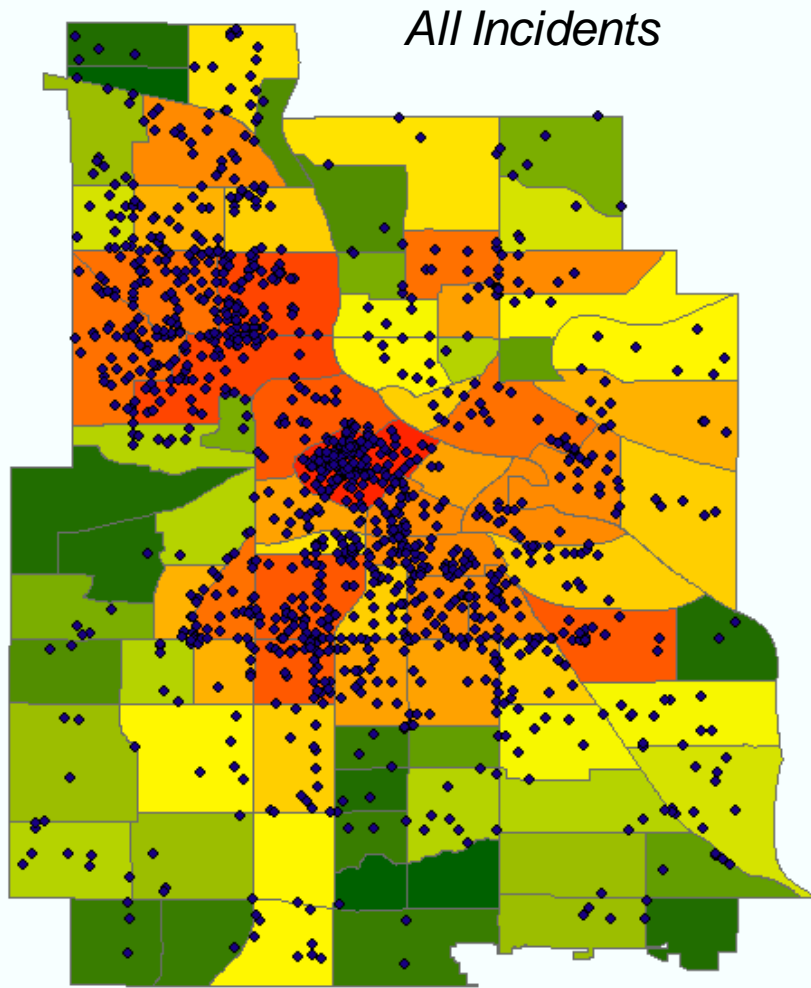
- ❑ GPS trace pattern discovery - **Patrol**
 - ❑ Task 1: Identify the police cars that follow the patrol pattern.
 - ❑ Task 2: Analyze the coverage of the patrol traces on the daily base.
 - ❑ Task 3: Evaluate (and improve) the effectiveness of these patrol trajectories with other dataset (e.g., CAD, CARPS, NBHD).



Patrol Trajectories



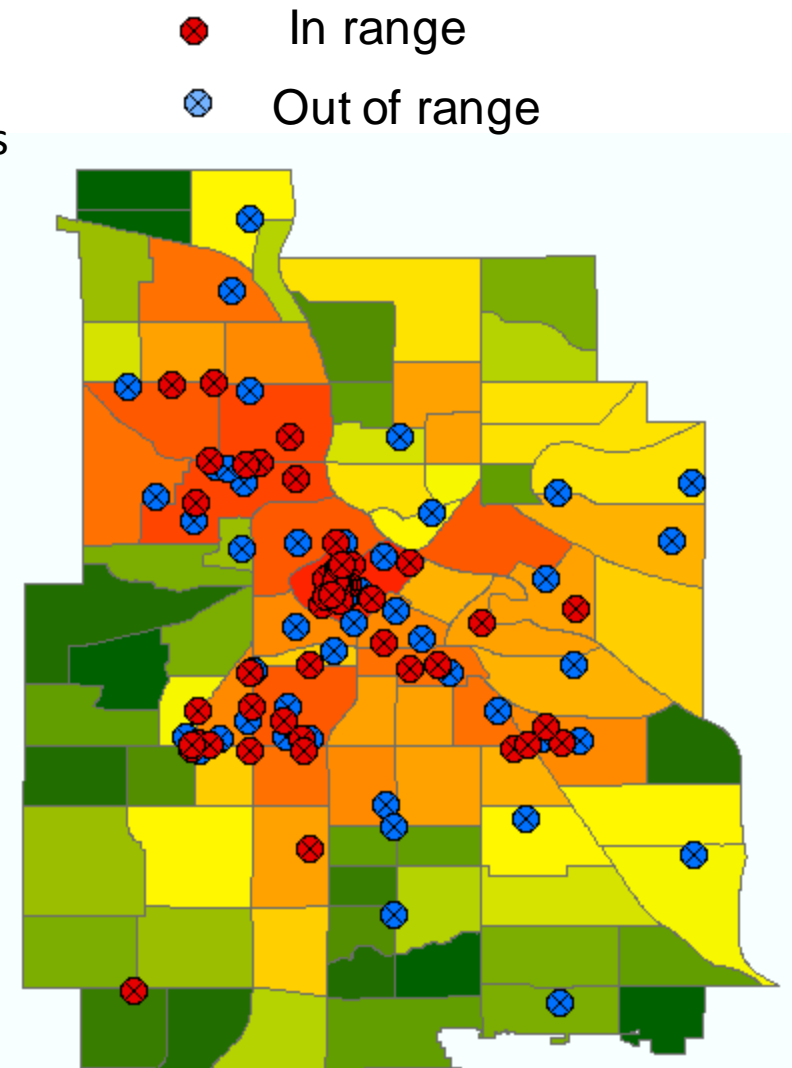
Overlay with Crime Incidents



Spatio-Temporal Correlation Study

■ Spatio-Temporal Analytics – THEFT 152 incidents

	50 Meter s	100 Meters	200 Meters
Within 15 minutes	15 (10%)	46 (30%)	86(56%)
Within 30 minutes	25 (16%)	59(39%)	99 (65%)
Within 1 hour	39 (25%)	79 (52%)	124 (82%)
Within 2 hours	56 (37%)	106 (70%)	140 (92%)



30 minutes, 100 meters

City Commission Conference

CITY OF FORT LAUDERDALE Fort Lauderdale Beach Master Plan Projects

November 6, 2012



Sebastian St / Alhambra St



SR A1A Streetscape (West Side)



SR A1A Beachfront Promenade (East Side)



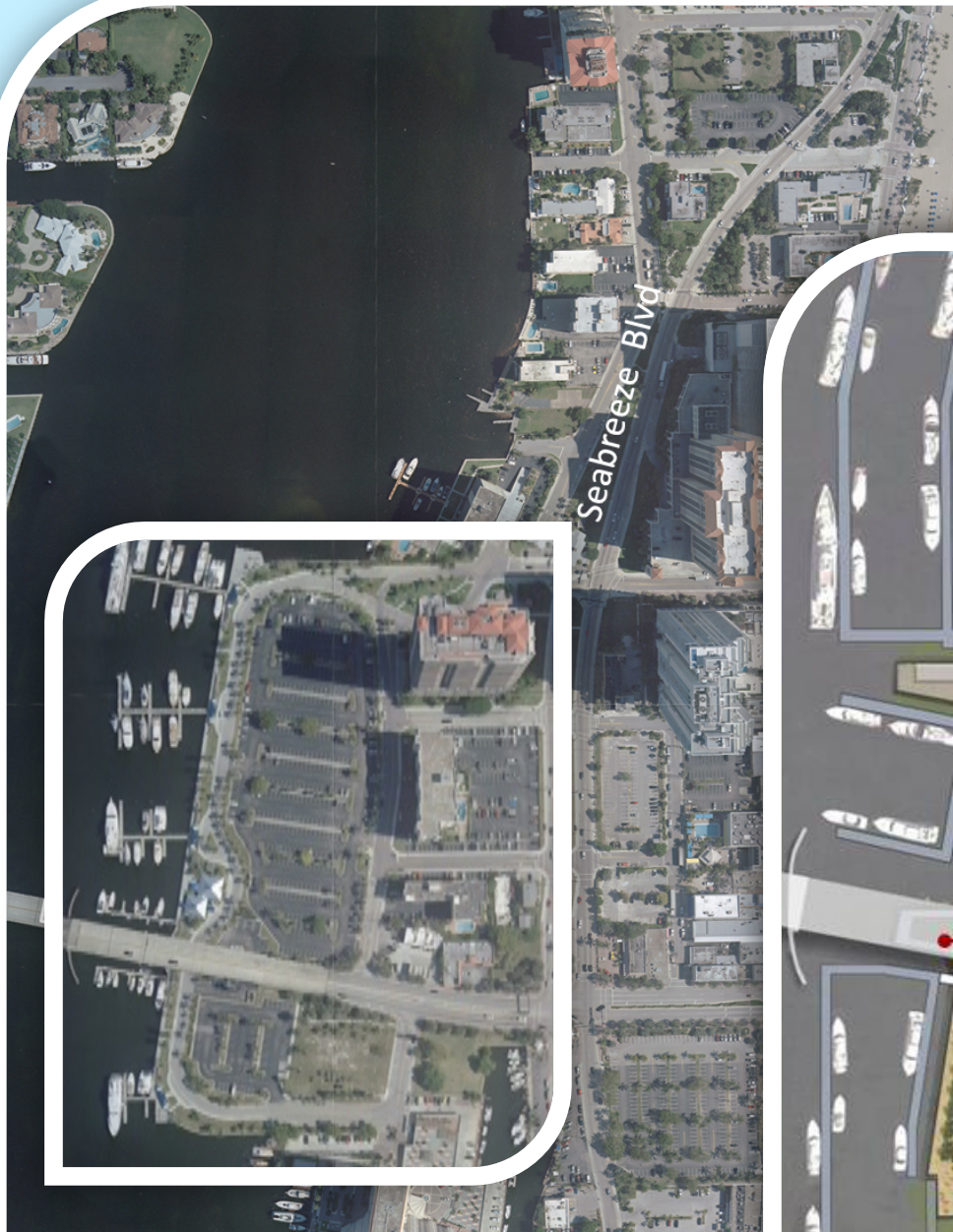
Almond Avenue



Las Olas Blvd Plaza



Intracoastal Promenade / Marina Expansion

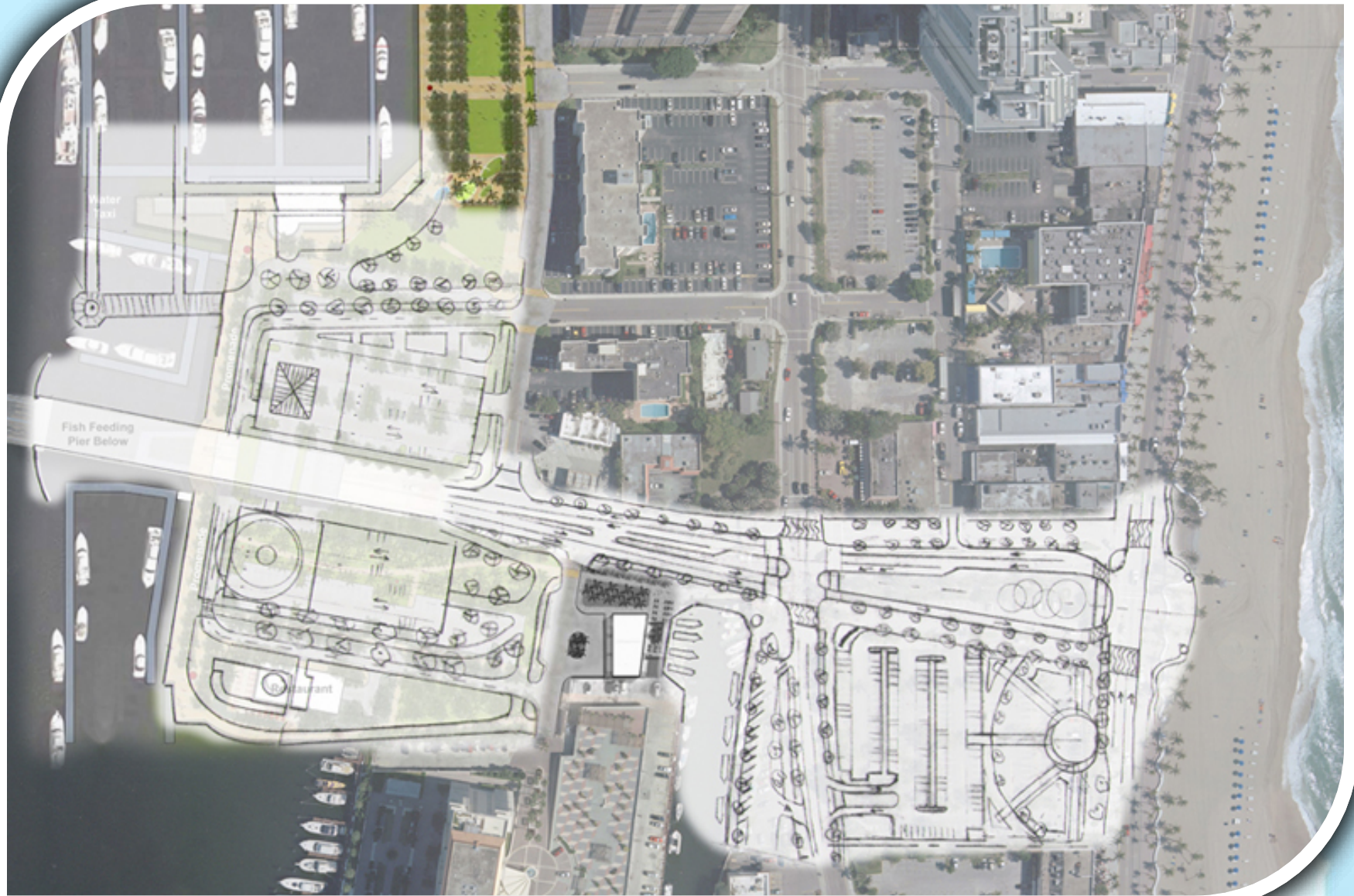


Las Olas Blvd Area – Alternative Concepts

Fort Lauderdale Beach Master Plan



Shifted Las Olas Blvd Alignment Concept



Overall Project Development Plan

Sebastian Lot

SR A1A Beachfront Promenade
(East Side)

SR A1A Streetscape (West Side)

Intracoastal Promenade /
Marina Expansion

Almond Avenue

Shifted Las Olas Blvd Alignment
Las Olas Plaza
Oceanside Park
Parking Garages

Aquatics Complex

