



Financial
Sustainability
of
Connected
Vehicles

Martin Stone, Ph.D., AICP
General Manager
Egis Projects, Inc. USA

EGIS: MARTIN STONE, Ph.D., AICP – 35+ YEARS IN TRANSPORTATION

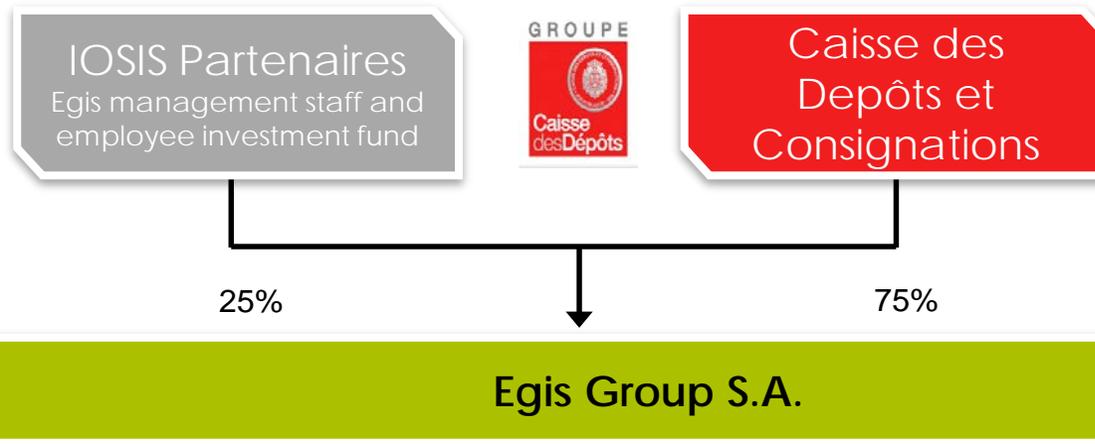
- ❖ MA in Urban Planning and Ph.D. in Public Administration
- ❖ 15 year as Tampa Hillsborough Expressway Authority Planning Director
- ❖ Planned & managed all THEA's ETC systems & ITS controls
- ❖ Planned & developed THEA's Reversible Express Lanes
- ❖ Planned & implemented 1st ORT lanes in the State of Florida
- ❖ Planned & implemented 1st AET System Conversion in Florida
- ❖ Consultant to Florida Turnpike Enterprise & Multiple FDOT Districts
- ❖ 1st Chairman of the IBTTA Interoperability Committee to develop the plan for toll interoperability in North America



Martin Stone
Egis Projects USA)
General Manager



EGIS: GLOBAL RESOURCES WITH A LOCAL FOCUS



- Staff: 138,000
- AAA/AA+ Rating
- Assets: >\$300 Billion

- ❖ Leading Worldwide Transportation Infrastructure Company
- ❖ 12,000 Employees in Over 100 Countries
- ❖ 41 Motorway & Toll Operations Projects
- ❖ >3 Million ETC Subscribers
- ❖ >2 Million Daily Transactions - >\$2 Billion Annual Tolls
- ❖ >1,300 Miles of Multi-Lane ETC & Traditional Toll Systems
- ❖ 1/3 are Long-Term Concessions with P3 Investments
- ❖ 7 Airport Operations Subsidiaries with 13 Airport Platforms



World Leader in P3 Multi-Modal Operations

❖ *EASYTRIP*

- Independent Multi-Modal Service Provider
- France, Greece, Ireland, Netherlands and Philippines

❖ *TransPass*

- 60 Ferry Routes
- Rail Bookings

❖ National and Regional Toll Interoperability

- Ireland, Greece, Canada and the US



CONNECTED VEHICLE

Autonomous Vehicles

- ❖ Vehicles that operate in some fashion (some or all of the driving actions) independent of the human driver

Connected Vehicles

- ❖ Vehicle-to-Vehicle (V2V): Vehicles that operate in some fashion due to communications or sensory input from other vehicles
- ❖ Vehicle-to-Infrastructure (V2I): Vehicles that operate in some fashion due to input from the highway, bridge or tunnel on which they are traveling – and also includes communication from the vehicle to the infrastructure – that may be relayed to other travelers

(or combinations of the above)

CONNECTED VEHICLE PILOT DEPLOYMENTS

USDOT Funded CV Pilot Project Contracts

Office of the Assistant Secretary for Research and Technology

- ❖ New York City, NY
- ❖ Tampa, FL
- ❖ State of Wyoming

CV Pilot Deployments

- ❖ Opportunity to put CV technology in the field
- ❖ Identify the planning & investment required to deliver CV technology
- ❖ Define approaches to performance measurement

Ultimate Goal

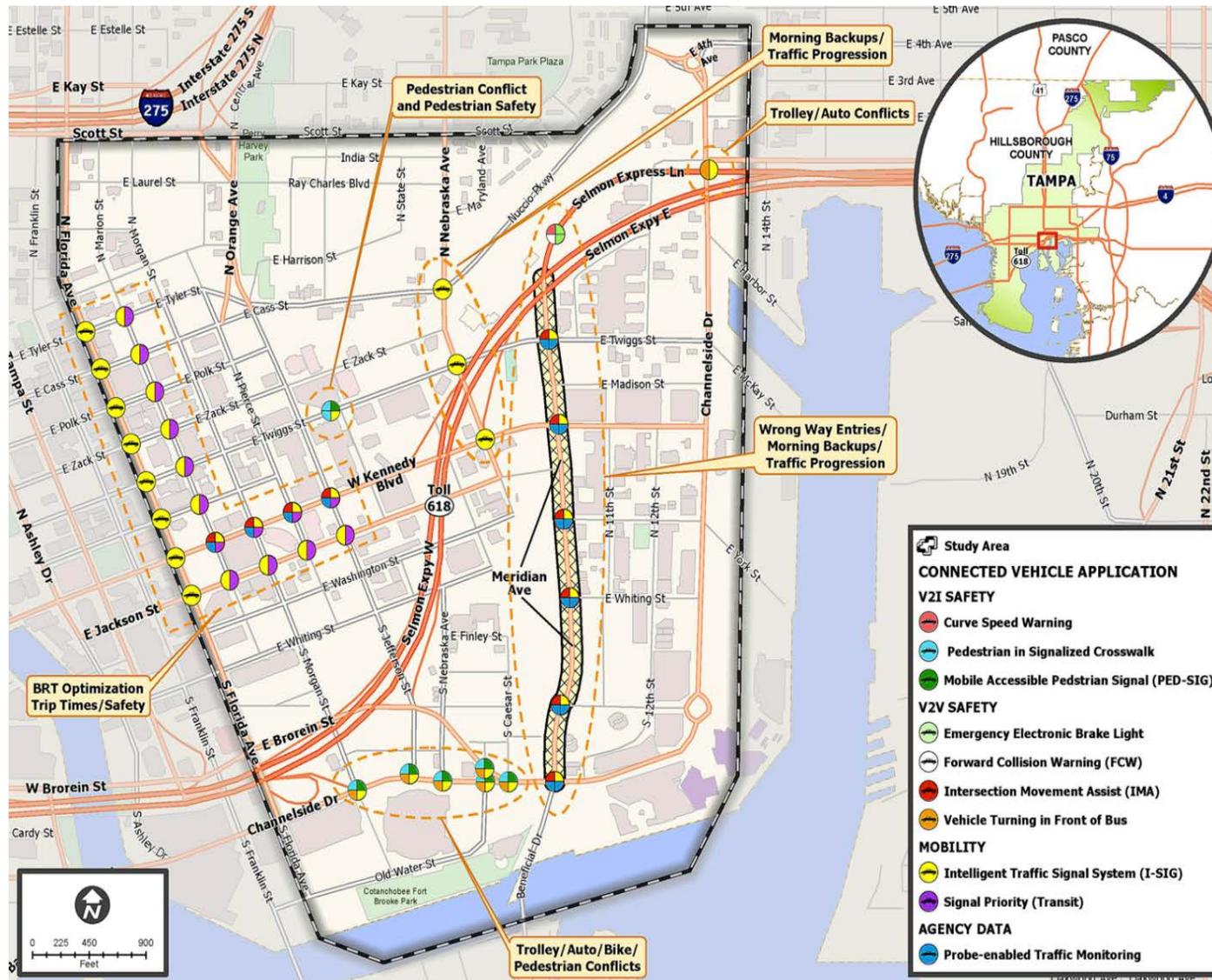
- ❖ Lower the barriers to deployment (includes financial sustainability)

CONNECTED VEHICLE PILOT DEPLOYMENTS



Courtesy: USDOT

CONNECTED VEHICLE PILOT DEPLOYMENTS – TAMPA, FLORIDA



Pilot Project

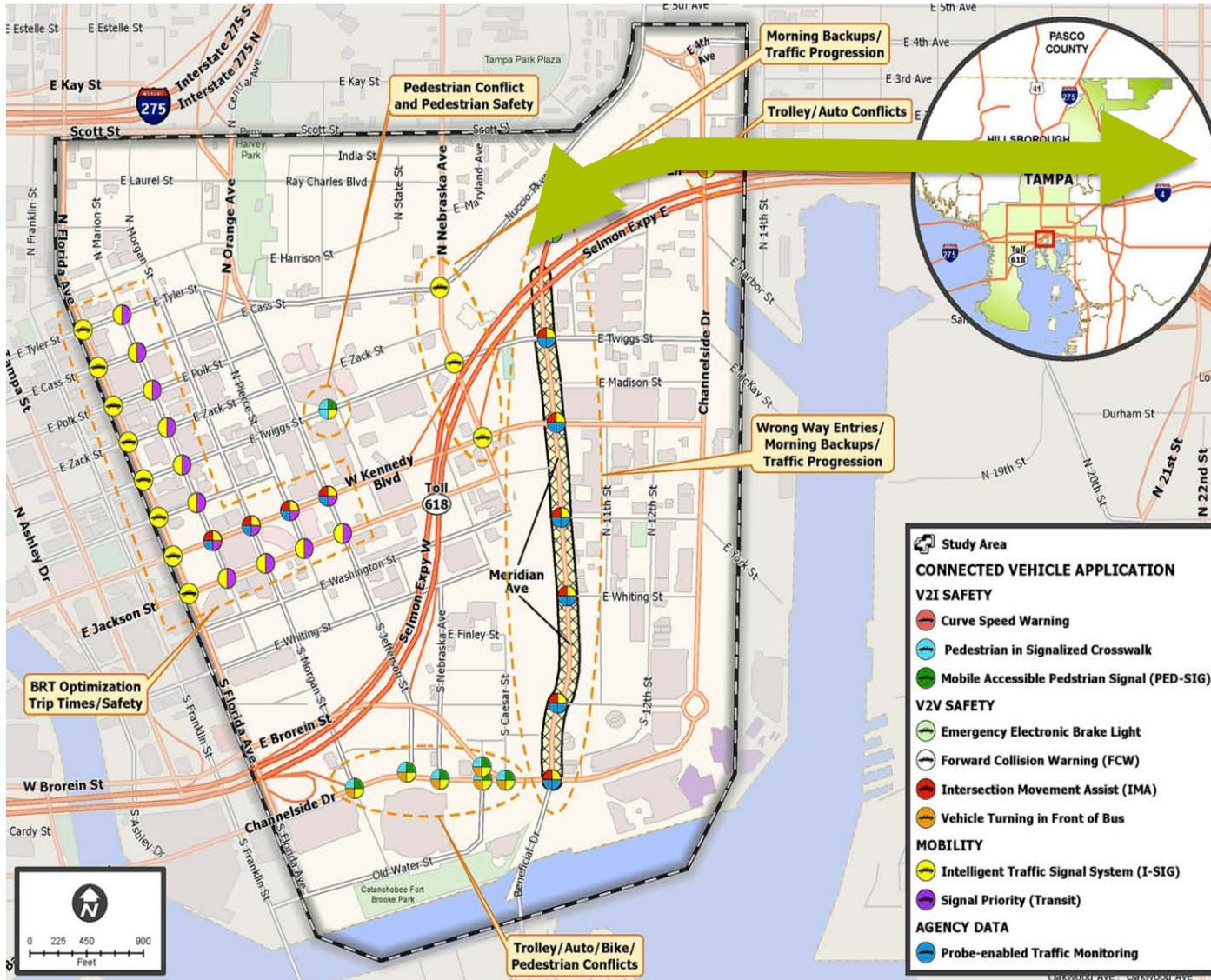
Phase I: Organization, Vision and Planning

Phase II: Design, Procurement, Public Relations and Deployment

Phase III: Operations and Maintenance

Courtesy: THEA

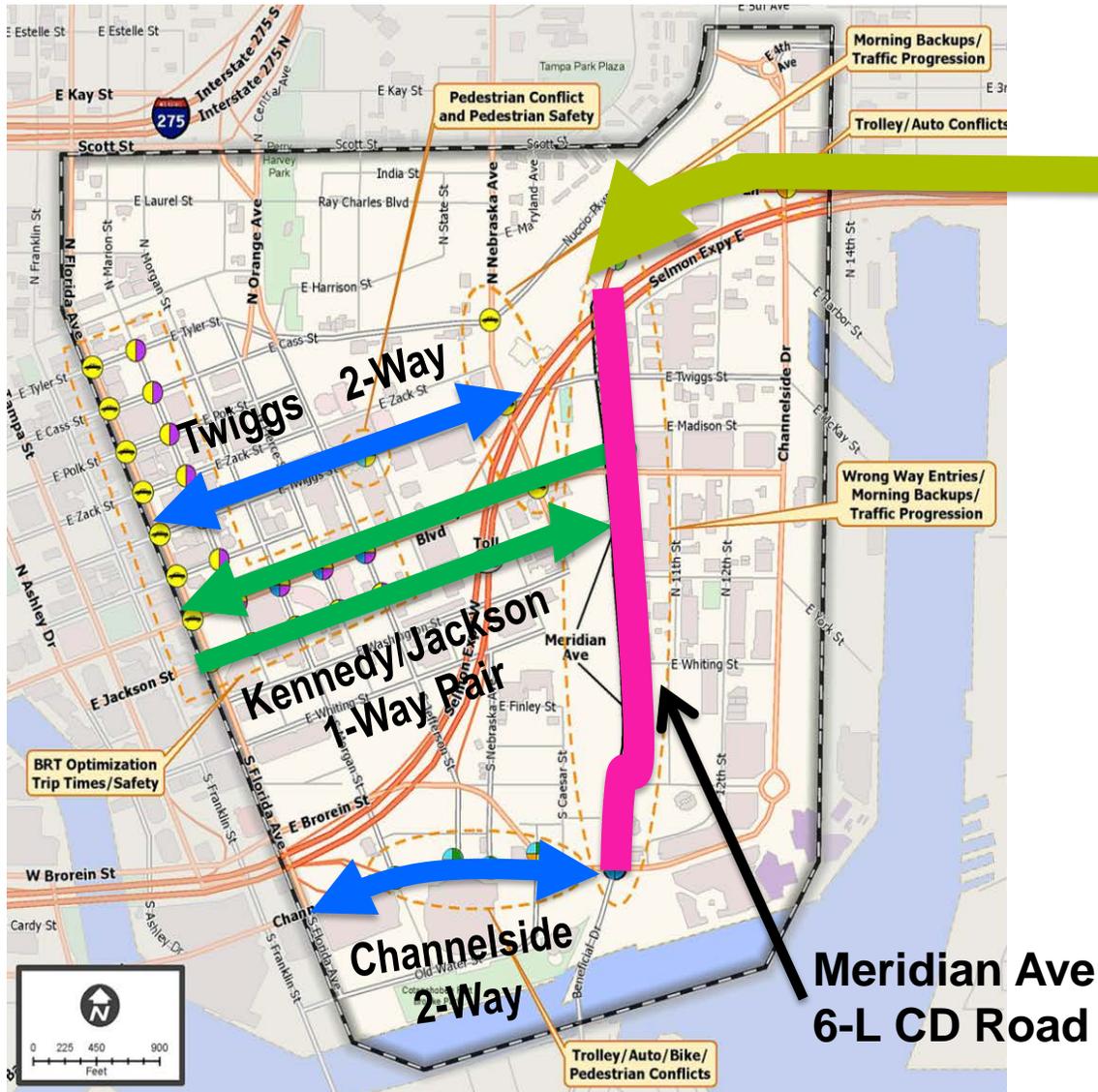
CONNECTED VEHICLE PILOT DEPLOYMENTS – TAMPA, FLORIDA



Selmon Reversible Express Lanes (REL)

Courtesy: THEA

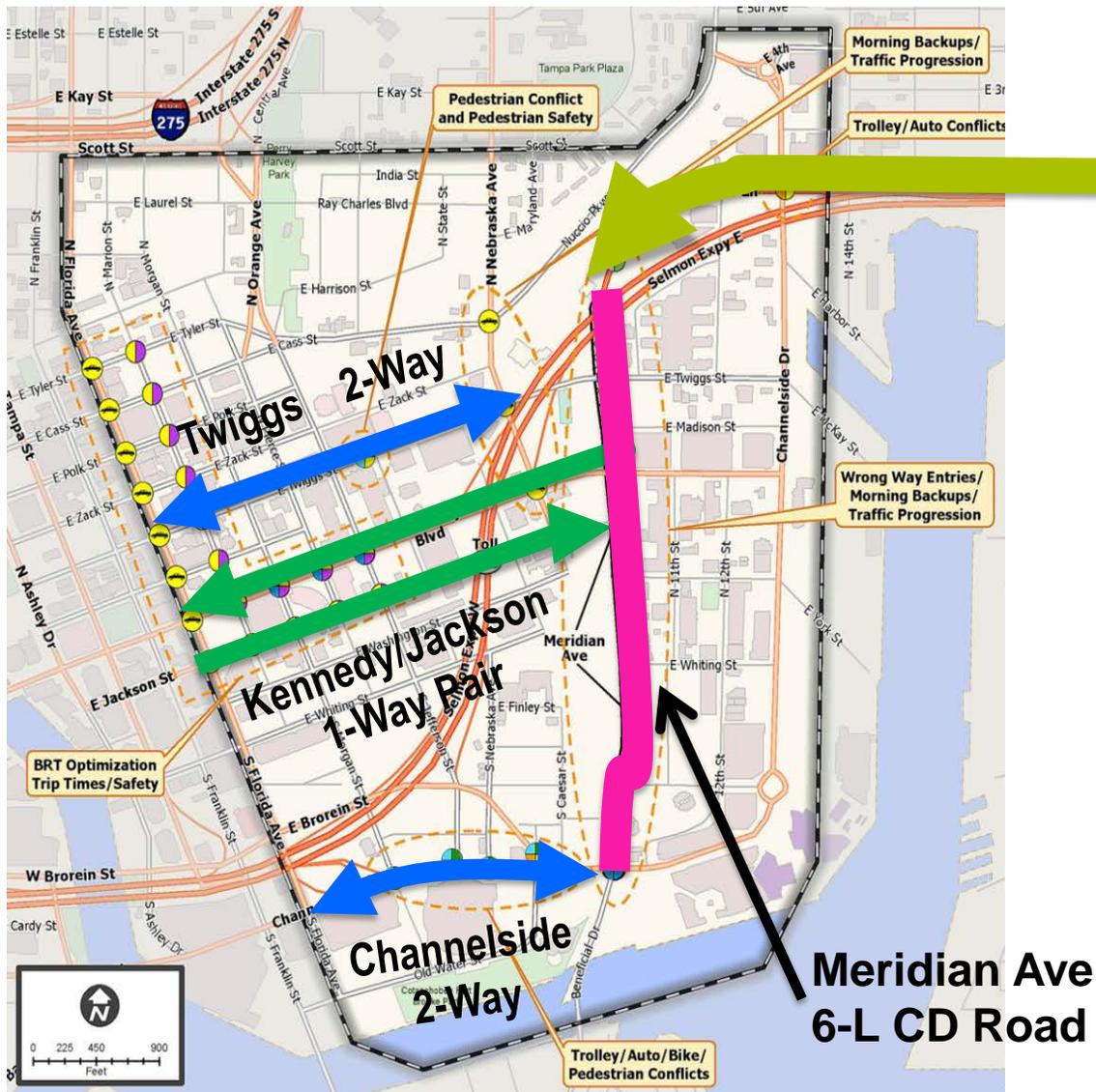
CONNECTED VEHICLE PILOT DEPLOYMENTS – TAMPA, FLORIDA



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CONNECTED VEHICLE PILOT DEPLOYMENTS – TAMPA, FLORIDA



Selmon Reversible
Express Lanes (REL)

How do we make
CV systems
financially
sustainable?

Courtesy: THEA

Transportation Funding

Competitive Public Environment

□ CAPEX

- ❖ **Federal Grants & Contracts** (from fuel taxes & general funds)
- ❖ **State & Local Capital Programs**
 - Fuel and other taxes (sales, real estate, etc.)
 - Tolls (user fees)

Transportation Funding

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□ OPEX

- ❖ **State and Local Operating & Maintenance Programs**
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Transportation Funding

Competitive Public Environment

❑ **Public-Private Partnerships (P3) Offer Commercially Sustainable Solutions**

❖ **Mobility-as-a-Service (MaaS)**

- **Public Agency/Jurisdiction**
 - Investments
 - Subsidies
- **Private Products and Services**
 - Marketing Models
 - Customer Willingness to Pay

P3 Mobility-as-a-Service (MaaS)

- ❖ **Open Framework** (with published interfaces/APIs)
- ❖ **3rd Party Providers** (allow 3rd-party public & private service providers to compete for access to customers)
- ❖ **Competitive Products & Services** (providers differentiate their offerings with prices and value-added services)

- ❖ **Public Oversight**

Example: The public authority could provide the basic CV network & service (safety and operations) and the platform to which 3rd party/independent service providers connect (and pay fees to the public authority)

Question: What sources of commercial revenue exist that could support on-going CV operations & maintenance?

CONNECTED VEHICLES – MAKING CV FINANCIALLY SUSTAINABLE

Sources of Commercial Revenue for CV Funding

(from the Internet of Things)

Courtesy: Franz Tschimben, Savari

Add-on	Direct Selling	Integrator	Orchestrator	Self-Service
Affiliation	E-Commerce	Layer Player	Pay per use	Shop in Shop
Aikido	Experience Selling	Leverage Customer Data	Pay what you want	Solution Provider
Auction	Flat rate	License	Peer-to-Peer	Subscription
Barter	Fractional Ownership	Lock-in	Performance based contracting	Supermarket
Cash Machine	Franchising	Long Tail	Razor and blade	Target the poor
Cross Selling	Freemium	Make more of it	Rent instead of buy	Trash to Cash
Crowd Funding	From Push to Pull	Mass Customization	Revenue Sharing	Two sided market
Crowd Sourcing	Guaranteed Availability	No Frills	Revenue Engineering	Ultimate Luxury
Customer Loyalty	Hidden Revenue	Open Business Model	Reverse Innovation	User designed
Digitization	Ingredient Branding	Open Source	Robin Hood	White Label

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Add-On  SUN PASS PLUS

Freemium  On

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OUTSMARTING TRAFFIC, TOGETHER

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Leverage Customer Data  **Google**

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Pay Per Use  **EPASS**

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Solution Provider 

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Solution Provider 

Subscription 

P3 Mobility-as-a-Service (MaaS) For Connected Vehicles & Parking

- ❖ CV platform could be an open framework for urban parking
- ❖ Allows CV drivers to find, reserve, purchase and access parking (with directions) as they approach an urban area
- ❖ Allow public & private parking providers to compete for access to these customers through the CV platform (including private spaces)
- ❖ 3rd-party providers can offer different quality/price of parking locations, GPS directions, merchant & restaurant discounts, etc.
- ❖ Public authority can receive a piece of the pie to be used for sustaining the CV system (O&M and improvements)

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