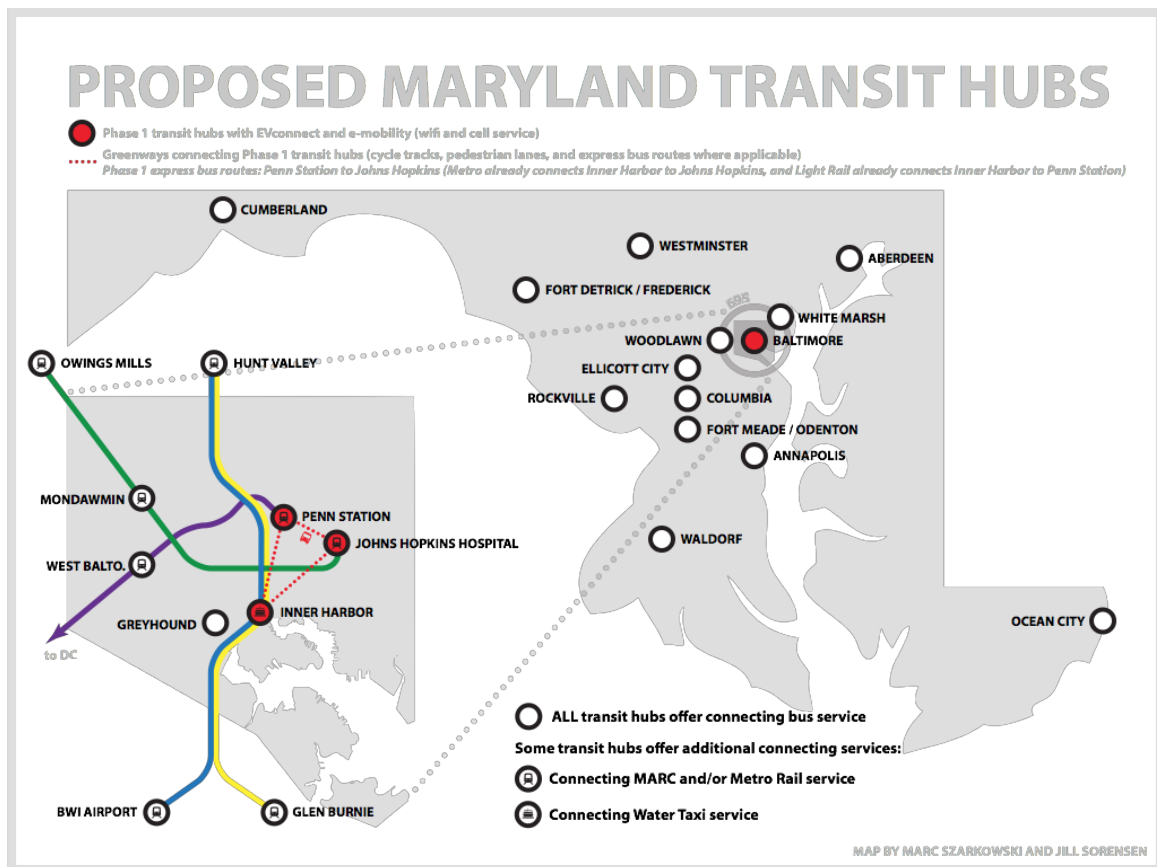


INTRODUCTION – Mobility Hubs in Baltimore

In 2015, BEVI published a Whitepaper advocating for the siting of EV-ready transit hubs throughout Maryland, starting in Baltimore City. We worked with key stakeholders to study, socialize and implement this concept, combining it with smart city initiatives and infrastructure development. The work became known as the Baltimore Smart City initiative or “B’Smart” Project, a smart city planning construct that addresses the interdisciplinary nature of this infrastructure development work, crossing clean energy, clean transportation and Internet of Things applications. Community safety, public WiFi, health, wellness and economic opportunity are included in the smart city planning mix.



B’Smart stakeholders include City and State units of government, our local utility, area nonprofits, university researchers and smart city industry partners. The B’Smart consensus is to focus our efforts on low-income communities in the City hardest hit with transportation access challenges, such as West Baltimore. This meant we needed the input and cooperation of the community.

B’Smart has become a call to action for mobility. Our Maryland Transit Administration (MTA) has been leading the charge with its [BaltimoreLink](#) plan. First announced in October of 2015, the BaltimoreLink plan embraces the concept of transit hubs. Actually creating the hubs in a way that embraces clean energy and smart city planning challenges boundaries

of agency jurisdiction, policy, politics, practice. Still, MTA and the Baltimore City Department of Transportation are making progress. Under the leadership of Mayor Catherine Pugh, and in close cooperation with State Governor Larry Hogan and his administration, the first of the new transit hubs is emerging as the [new West Baltimore MARC Station](#). A new Smart City Counsel for Baltimore City has been announced, and will continue to advance the multi-modal transportation options such as bike-sharing, car sharing and electric vehicle charging to be available at each one of these locations to support commuters. Favoring zero emission vehicles will help reduce pollution from the transportation sector, improve City health, wellness and mobility.

TRANSIT HUB PRINCIPLE

A Transit Hub is a location that coordinates existing public transportation options like bus or rail with multi-modal transportation resources like pedestrian, cycling, bike-share and car-share. More than just a rail station or a bus stop, a Transit Hub enables someone to get to and from public transportation using a connecting bus, shuttle, bike or car-share service, thus eliminating the need to own a car in order to get to and from work or around town. Transit facilities and services are an essential element of the social, economic, and cultural fabric of every city and region in Maryland. Presently, Maryland's transit resources are distributed, overlapping, and inefficient. Greater coordination would save operating and capital expenses, reduce energy consumption, pollution and traffic congestion. Too many citizens continue to drive. We need to improve our transit culture and transit options as a compelling complement and preferred option to cars, especially for urban transportation. A high quality transit system will bring communities together, enhance public safety, provide local business opportunities and improve quality of life. A Maryland Transit Hub system would achieve the following objectives:

- Streamline transit planning, land use patterns and infrastructure by defining strategic Transit Hub locations across the State
- Facilitate the development of Greenway routes between Transit Hubs for faster, safer and more efficiently transportation, especially from Hub to Hub
- Reduce traffic congestion management
- Improve air quality by promoting electric vehicles (zero emission) and active transportation (cycling and walking) to Hubs
- Reduce energy consumption and, therefore, produce transportation-related energy savings
- Form the backbone for managing travel demand
- Provide essential mobility for those who do not operate a private vehicle
- Build community space
- Design and operate each Hub as a microgrid capable of operating in power outages, fortifying the grid with back-up power
- Promote Smart City design by incorporating broadband conduit and free wireless internet access as part of each Transit Hub and Greenway.

THE NEW TRANSIT VISION FOR MARYLAND, starting with BaltimoreLink

The new transit vision for Maryland creates a more user friendly, attractive, efficient and reliable transit system for the State. The keys to this new transit vision are these:



- Site design and active transportation improvements, pedestrian and cycling in particular, are critical to supporting transit use
- Enhancing existing services can offer large benefits, particularly smart phone and related digital support
- Defining EV-ready Transit Hubs as strategic transit assets across the State, connected by express routes for electric buses, cycling and walking to promote active, clean transportation from Hub to Hub
- Connecting Transit Hubs by express electric buses and promoting cycling and walking
- Broad regional support
- Increasing transit ridership and revenue by improving the quality of all transit services
- Aligning transit services with demand
- Improving existing and develop new partnerships with public and private stakeholders
- Re-emphasizing the need for transit supportive built environments (TOD – transit-oriented development) which can be achieved through design guideline development
- Continued performance monitoring to guide service development This new transit vision for Maryland has two primary components:

Bus Rapid Transit (BRT) service designed around current critical transit connection sites to be re-defined as Transit Hubs

This component emphasizes the use of transit as a key transportation mode complemented by transit oriented development. Bus Rapid Transit (BRT), preferably electric, is a high performance transit service that functions more like light rail than a local bus. In the preferred Transit Hub matrix for Maryland, Hub to Hub BRTs run express on dedicated “greenway” routes from Hub to Hub, incorporating elements such as priority treatment at traffic signals, reduced, restricted or eliminated car access, station amenities such as real time arrival/departure information, attractive shelters, free wifi, park-and-ride lots, benches and in some cases restrooms and other services. BRT systems are complemented by local buses, sometimes referred to as feeders, to bring passengers to the high performance BRT routes.

To further encourage transit use, Transit Oriented Development (TOD) is encouraged at BRT or other transit service stations. Transit Oriented Development is generally defined as mixed-use development (development that mixes residential, retail, office, open space, and public uses) within walking distance of a transit stop that encourages travel on foot or by public transportation instead of by car.

Greenways Corridors to allow express, active transportation from Transit Hub to Transit Hub

Greenways would be dedicated routes from Hub to Hub that provide for express buses, preferably electric, cycling and pedestrian movement. Greenways, in combination with Transit Oriented Development (TOD), will create communities that on a regional scale preserve open space and reduce the need for travel by car, thus reducing congestion and vehicle emissions. Transit Oriented Development is generally defined as mixed-use development (mixing residential, retail, office, open space, and public uses) within walking distance of a transit stop that encourages travel on foot or by public transportation instead of by car. The “permanent” nature of Greenways contributes to greater development along a corridor than that stimulated by local bus service in mixed traffic.



MARYLAND NEW TRANSIT VISION COMPONENTS

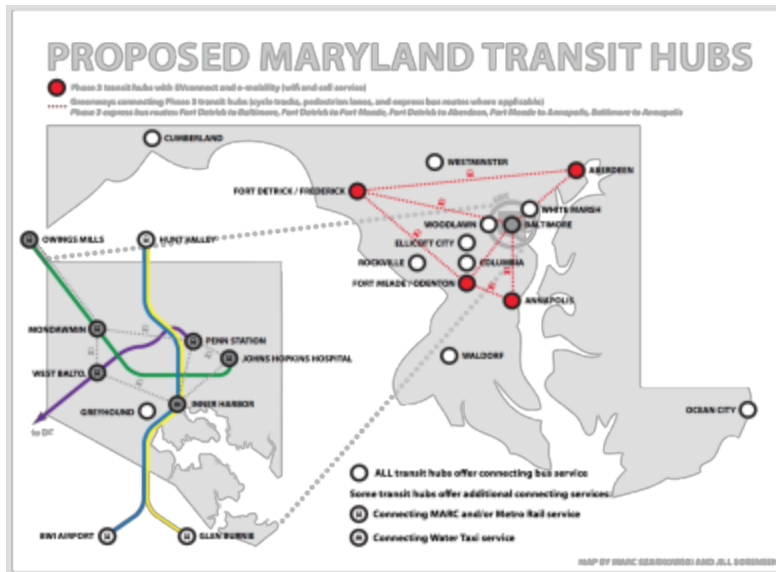
- [Bus-only travel lane](#)
- Greenways, including pedestrian and bike paths
- Bike-share and Car-share at every Transit Hub location
- Greenway transit signal priority, energy saving LED streetlights and accompanying digital signage
- ADA compliant Transit Hub shelters,
- EV-ready Park and Ride lots with Level 1 and Level 2 charging
- Smart Card and mobile application transportation mode interoperability
- Free wifi at all Transit Hubs
- Transit Hubs as microgrids

RECOMMENDATIONS (next 5 years)

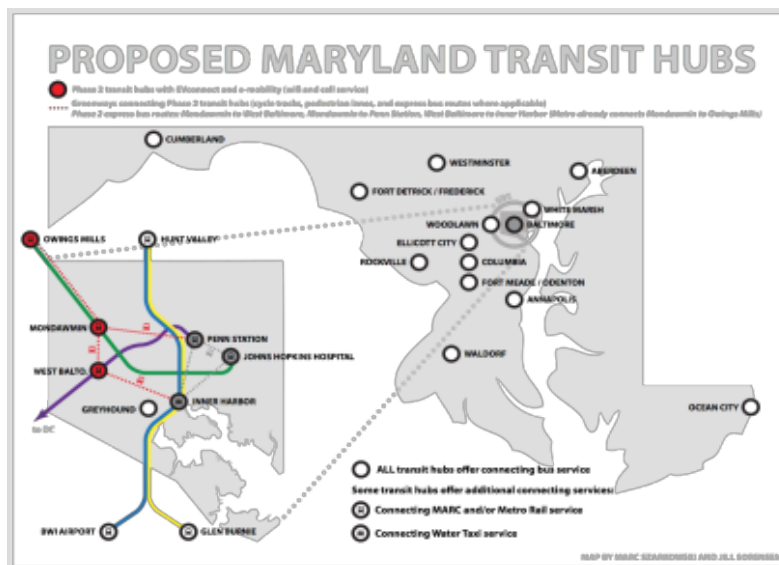
1. Continue to support MTA in implementing its 2015 Transit Development Plan and BaltimoreLink
 - a. Expand BRT around a Transit Hub Master Plan
 - b. Strengthen the system beginning with express routes from Hub to Hub, preferably on defined Greenway Corridors, and local routes.
 - c. Improve the fleet by reintroducing electric buses on BRT routes, providing commuter coaches on all express routes, and installed Intelligent Transportation System components on all vehicles.
 - d. Plan for and begin to construct Transit Hubs starting with key strategic locations .
 - e. Improve transit infrastructure by implementing BRT infrastructure throughout the MTA system, bus only lanes, pedestrian access, more shelters, universal Smart Card and Smart Phone access, a new Computer Aided Dispatch and Automatic Vehicle Location systems, and a new fare collection system.
 - f. Better integrate pedestrian, transit, and bicycle infrastructure using Greenways.
2. Investigate new funding mechanisms to support MTA, Baltimore and regional transit operations
 - a. Energy and monetary savings by converting to electric buses and LED street lights.
 - b. Appropriate level of fare increase for base fare on fixed route services to increase the share of revenue provided by transit customers.
 - c. New and expanded transit access agreements for Smart Card or device users, service personnel (military, police, firemen, educators and students, non- profit sectors).
3. Revise the Transportation Improvement Program project evaluation process to ensure that transit is being considered in the benefit/cost ratio developed for all projects. Support the State's goals to reduce greenhouse gas emission impacts during project selection and development.
4. Explore the potential for bus/transit only travel lanes, beyond those planned for the BRT routes, in various locations throughout the region.
5. Use established national criteria to identify transit corridors that may have the potential to support streetcar or light rail transit.



6. Coordinate with municipalities, the counties and the state in the development of Complete Street design guidelines, standards and/or ordinances that incorporate the needs of the regional transit system (including articulated buses). Encourage inclusion of transit access for pedestrians in state and municipal ADA conformance plans (universal design elements such as sidewalks in good condition, curb ramps, etc.).
7. Ensure that ADA (Americans with Disabilities Act) requirements are being met adjacent to all transit routes, on regular route vehicles and on paratransit vehicles through the implementation of universal design techniques (those that accommodate the widest range of users). Explore further use of audio and video based technologies on buses.
8. Continue to work with and promote integrated land use and transportation planning that supports transit oriented development and land use projects that encourage transit use (especially for seniors and lower income housing). Improve local understanding of development finance in real estate markets for transit oriented development.
9. Encourage improved intermodal connections among transit providers including Amtrak, intercity, county, university and independent bus carriers, and the Baltimore-Washington International Airport as well as walking, bicycling, and driving. Work with MTA and regional transit carriers, including Amtrak, on the development of shared intermodal stations.
10. Continue to engage major public and private stakeholders in transportation demand management initiatives and monitor significant new development in order to structure future transit service, transit access agreements (employer/institution financial partnerships with MTA), and opportunities to influence development in transit supportive ways.
11. Develop marketing or education materials targeted to elected officials, developers, financiers, etc. about the benefits of transit and the cost to provide transit service.
12. Continue to encourage open communication between State agencies and non-State transit providers.



Phase II Transit Hub Dev



Phase III Transit Hub Dev

