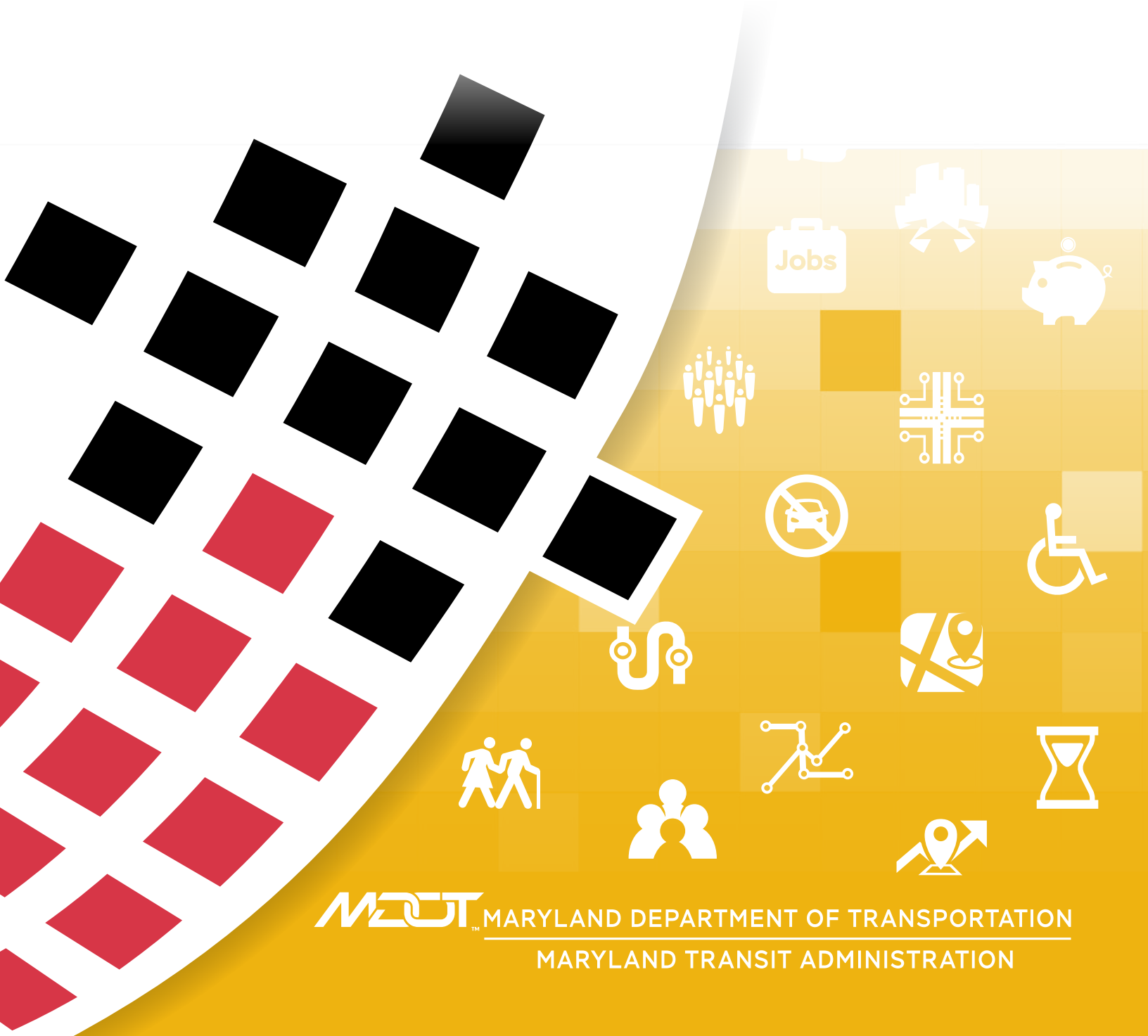
Connecting Our Future
A Regional Transit Plan for Central Maryland

Corridor Evaluation Measures Methodologies

November 2019



MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION

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In order to evaluate the suitability of the corridors, the project team developed measures that reflected the goals below. These measures aim to assess existing transit readiness and quantify the magnitude of a potential corridor's impact on existing and future conditions.

This document lists each measure and explains the methodology and source behind each one. The measures are not weighted—rather, they are meant to be a guide for decision-makers to understand the potential impacts that improvements to each transit corridor would have on different demographics of people, access to jobs, and access to other existing transit.

The results of these measures will help the RTP project team, the commissioners, the public, and other stakeholders prioritize the corridors and the implementation timeline of improvements.

Goal 1

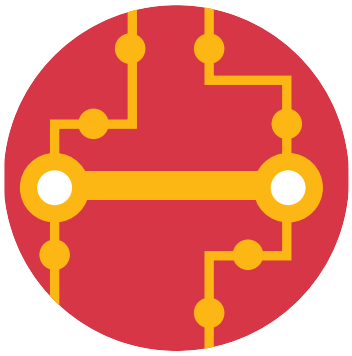
Improve Connectivity & Seamlessness of Transit Services

Goal 2

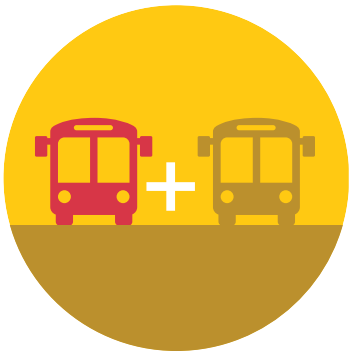
Optimize Existing Transit Services

Does this corridor address a current or future transit gap?

Each corridor was evaluated against three criteria, listed below. If the corridor met at least one criterion, it was determined to address a transit gap.



The corridor creates a direct link that doesn't exist but is justified now or in the future.



The corridor has existing service but demand for additional or a higher quality or level of service is justified.

The corridor justifies additional infrastructure investment to improve travel times or reliability of existing transit service.

The market, transit network, and travel flow analyses were evaluated together by the RTP Project Team in order to determine which gap(s) a corridor filled. A "yes" was required for the corridor to move forward.

How many existing jobs are accessible to the corridor?

First, each corridor was buffered ½ mile (as the crow flies) to represent the corridor's walkable service area, and jobs within all block groups that intersected the buffer were summed. If a block group intersected only part of the buffer, only a proportion of the jobs assigned to that block group (proportional to the percentage of the block group's total area that intersected the buffer) were added to the job sum.

Then, the total number of jobs accessible to the corridor was divided by the total length in miles of the corridor to control for length of the corridor. The resulting measure was Number of Jobs per Mile.
Source: LEHD 2015 Jobs Data

How many future jobs are accessible to the corridor?

Similar to the existing jobs accessible measure, first, each corridor was buffered ½ mile (as the crow flies) to represent the corridor's walkable service area, and future jobs within a transportation analysis zone (TAZ) that intersected the buffer were summed. If a TAZ intersected only part of the buffer, only a proportion of the jobs assigned to that TAZ (proportional to the percentage of the TAZ's total area that intersected the buffer) were added to the job sum.

Then, the total number of projected jobs accessible to the corridor was divided by the total length in miles of the corridor to control for length of the corridor. The resulting measure was Number of Future Jobs per Mile.

Source: BMC Round 9 Cooperative Forecasted Jobs Data for 2045

Is land use/zoning transit-supportive?

One important indicator of whether a place is compatible with transit service is the level of intensity of the land use within an easy walk of the corridor. To identify where land use was transit-supportive, three separate measures answer were recorded. First, locations were identified where there are greater than 30 job/residents per acre,

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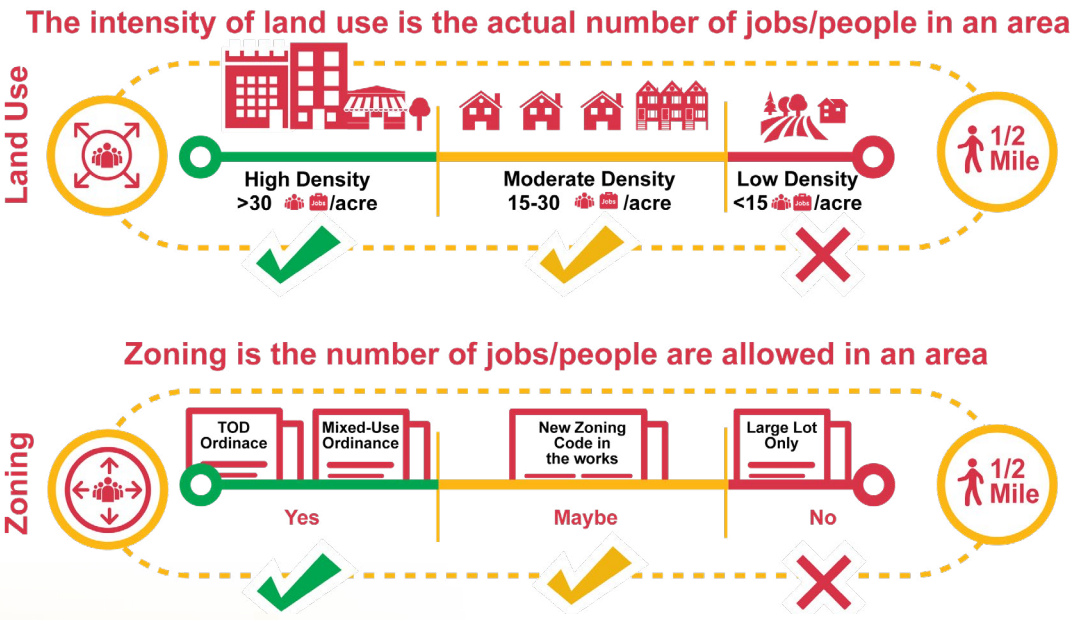

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according to ACS and LEHD data, on the census block level. These locations were designated as High Density. Using the same data, locations were identified where there were 15 to 30 jobs/residents per acre; these locations were labeled Moderate.

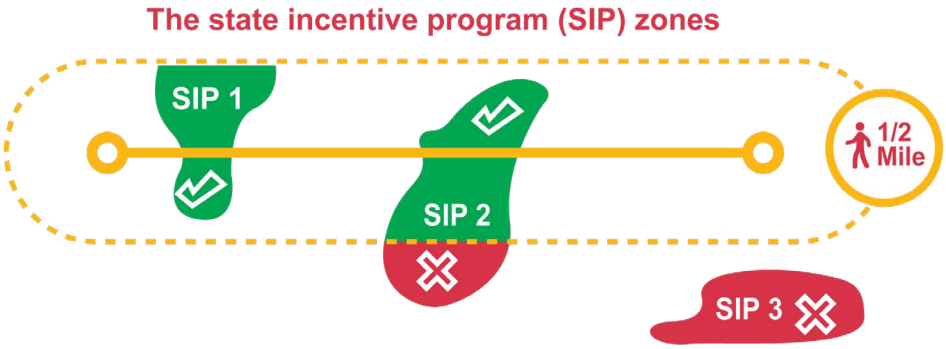
In the same manner as the other geographic measures, each corridor was first buffered ½ mile (as the crow flies) to represent the corridor's walkable service area, and the area of each block group that intersected the buffer and which was categorized as either high or moderate density was summed. If a block group intersected only part of the buffer, only a portion of the area that was assigned to that block group (proportional to the amount of the area that intersected the buffer) was added to the transit-supportive area sum. The transit-supportive land use area was then divided by the total area accessible to the corridor buffer to find the percentage of area that is transit-supportive. High Density and Moderate Density percentages have been reported separately.
Source: ACS 2015 5-year Estimates and LEHD 2015 Jobs Data

To find zoning that is transit-supportive, each jurisdiction's local zoning ordinances were examined, and each zoning category was qualitatively sorted into a "Yes/No/Maybe" category in terms of being transit-supportive based on provided densities and descriptions in the zoning ordinances. Then each corridor was buffered ½ mile (as the crow flies) to represent the corridor's walkable service area, and intersected with the jurisdictional zones that were categorized as either yes or maybe transit-supportive, and the areas were summed. If a zone intersected only part of the buffer, only a portion of the area that was assigned to that zone (proportional to the amount of the area that intersected the buffer) was added to the transit-supportive area sum. The transit-supportive zoning area was then divided by the total area accessible to the corridor buffer to find the percentage of area which is transit-supportive.

Many of the zoning categories are purely descriptive and provide no numeric density limits, but some zoning categories were clear as to whether or not they could generate significant transit demand; Howard County's R-A-15-TNC zoning category, which allows "Residential: Apartments, Traditional Neighborhood Center" was a clear "yes" while Harford County's Agricultural zoning category was a clear "no." Some designations were less clear, and were sorted into the "maybe" category, such as Baltimore County's Service Employment zone, which was described as "permits and encourages the development of offices, related business service uses and small, low impact, light industrial uses; stresses compatibility with residential uses."
Source: Jurisdiction Zoning Ordinances *(Anne Arundel County, 2019; Baltimore City, 2016; Baltimore County, 2019; Harford County 2019; Howard County, 2018)*

Is the corridor within a growth area?

Similar to the land use and zoning measures, the state incentive program (SIP) zones were examined for their overlap with the walkable buffers around the proposed corridors. State Incentive Programs examined included: Enterprise zones, BRAC zones, TOD Areas, Opportunity Zones, and Sustainable Communities.



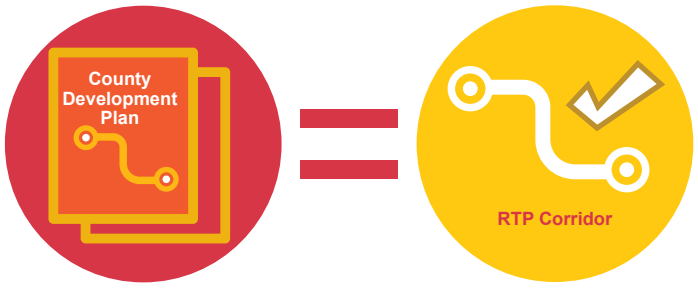
If a SIP zone intersected the corridor's ½-mile buffer (representing the corridor's walkable service area), that SIP zone's area was summed. If a SIP zone intersected only part of the buffer, only a portion of the area that was assigned to that zone (proportional to the percentage of the area that intersected the buffer) was added to the growth area sum. The growth area was then divided by the total area accessible to the corridor buffer to find the percentage of area which is within a growth boundary. While there were many ways to define "growth area," the State Incentive Programs, taken together, include specific ways in which development is incentivized, and are created with input from the jurisdictions.

Source: Maryland Departments of Commerce, Housing and Community Development, and Transportation

Is the corridor in existing plans?

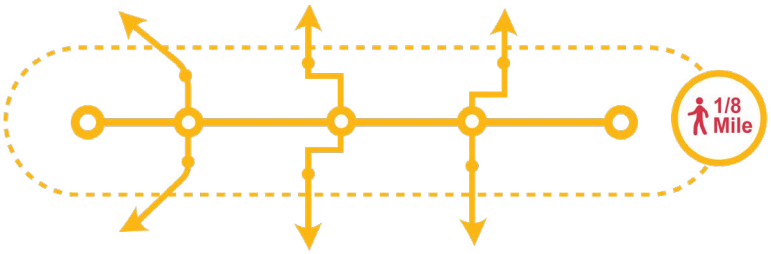
A corridor's inclusion in officially adopted planning documents indicates that it is representative of the vision, strategic decisions, and expectations of the community. Each corridor received one point for each of the types of plan that was specific to the corridor or to one of the places that the corridor would serve. The types of plans are:

- Corridor plans
- TOD plans, or other transit-specific plans
- Place-based plans such as small area plans
- The jurisdiction comprehensive plan, bike/ped master plan or priority letter



Source: A survey of publicly available planning documents that mention the corridors and the places they serve; County/Jurisdiction Comprehensive Plans

How many transit routes can you transfer to?



Each corridor was buffered 1/8 mile (as the crow flies) and intersected with the 1/8-mile buffer of the alignments for existing transit routes. Corridors were only buffered 1/8 mile for the transfer analysis (compared to ½ mile for other metrics evaluated in this analysis) because passengers are typically unwilling to walk long distances to make a transfer from one transit route to another. Routes identified as intersecting with the proposed corridors were then divided into routes which would be replaced with the new or improved corridor service, and routes which would intersect with the corridor service. The number of routes that intersected with the corridor service were summed to find the total number of potential transit routes that would have a transfer opportunity with the new corridor.

Source: GTFS Feeds from 2019 for MTA and LOTS

Does corridor improve on existing service?

Each corridor was buffered 1/8 mile and intersected with the 1/8 mile buffer of the alignments for existing transit routes. Those routes were then divided into routes which would be replaced with the new corridor service, and routes which would intersect with the corridor service. If a route that would likely be replaced by a corridor service was found, then the corridor was determined to be likely to improve on an existing service.

Source: GTFS Feeds from 2019 for MTA and LOTS. A "yes" was required for the corridor to move forward.

Number of residents accessible to the corridor?

First, each corridor was buffered ½ mile (as the crow flies) to represent the corridor's walkable service area, and the population within a block group that intersected the buffer was summed. If a block group intersected only part of the buffer, only a proportion of the population was assigned to that block group (proportional to the percentage of the area that intersected the buffer) were added to the population sum. Then, the total number of people accessible to the corridor was divided by the total length in miles of the corridor. The resulting measure was Number of People per Mile. This was done to control for length of the corridor.

Source: ACS 2015 5-year Estimates

Percentage of minority population within the corridor?

For this equity measure, each corridor was buffered ½ mile (as the crow flies) to represent the corridor's walkable service area, and the population within a block group that intersected the buffer were summed. If a block group intersected only part of the buffer, only a proportion of the population was assigned to that block group (proportional to the percentage of the area that intersected the buffer) were added to the population sum. This process was then repeated to find the minority populations. Minority was defined as non-white only persons.

Then, the percent of minority was found by dividing the minority population accessible to the corridor by the total population accessible to the corridor.

Source: ACS 2015 5-year Estimates

Percentage of low-income population within the corridor?

Same process as minority population, except found for households with incomes under 200% of the federal poverty line. Households were controlled for size in determining the poverty line limit to use.

Source: ACS 2015 5-year Estimates

Percentage of zero car ownership within the corridor?

Same process as minority population, except found for households reporting no car available.

Source: ACS 2015 5-year Estimates

Percentage of seniors within the corridor?

Same process as minority population, except found for populations over 65 years old.

Source: ACS 2015 5-year Estimates

Percentage of people with disabilities within the corridor?

Same process as minority population, except found for populations with a disability.
Source: ACS 2015 5-year Estimates

Does corridor serve areas with long commuting times?

Travel time for each block group in the study area was imputed from ACS data. In the ACS dataset, travel time is reported as the number of residents whose typical commute length falls within specified intervals (e.g. five minutes to nine minutes, ten minutes to fourteen minutes).

Each corridor was then buffered ½ mile (as the crow flies), and the number of workers (who do not report working at home) with commutes (on any mode) longer than 45 minutes were summed. If a block group intersected only part of the buffer, only a proportion of the workers was assigned to that block group (proportional to the percentage of the area that intersected the buffer) were added to the worker sum. The final measure used was the percent of workers within the corridor with commutes greater than 45 minutes.
Source: ACS 2015 5-year Estimates

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