

Case Study:

Improving Corridor and System Planning in Cape Cod

Cape Cod, MA

Lead Agency: Cape Cod Commission

INVEST Modules: Project Development and Systems Planning

Link to Full Cape Cod Commission INVEST Report: <https://www.sustainablehighways.org/files/1153.pdf>

The Cape Cod Commission serves as the metropolitan planning organization (MPO) for Cape Cod, Massachusetts, a coastal area of striking natural beauty. The Cape has a population of 215,000 year-round residents and a large seasonal flow of tourists that triples the population in the summer. The area consists of the 15 towns of Barnstable County. Aligning clearly with sustainability goals, the agency's mission is "... to protect the unique values and quality of life on Cape Cod by coordinating a balanced relationship between environmental protection and economic progress." The Cape Cod Commission used the INVEST 1.0 Project Development module to evaluate the Hyannis Access Study and the INVEST 1.0 System Planning module to inform the development of the next Regional Transportation Plan.



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For both assessments, the Cape Cod Commission assembled an interdisciplinary team of eight staff members. Team members included specialists in energy, historic preservation, transportation planning, natural resources, economic development, and hydrology. At least two staff members were assigned to each criterion to analyze and score individually. Staff members then met together in workshops to discuss the scoring of each criterion, develop consensus, make recommendations, and document lessons learned. The Commission estimates that the time commitment for each of the two assessments was approximately three to four staff spending half days for a week assessing the criteria and then eight staff participating in a full-day workshop. This adds up to about 80 staff hours total. Staff appreciated that the tool was free and easy to use.

Project Development Module: Hyannis Access Study

The Hyannis Access Study is a corridor planning study intended to better address the economic, social, and environmental needs of the region, focusing on Hyannis, which is a town in the central part of Cape Cod. Hyannis is the largest commercial region on the cape and is home to the regional airport, ferry terminal, train, and bus depot. It has retail, employment, a hospital, and housing, including low-income and minority communities.

The Cape Cod Commission decided to use INVEST to evaluate the sustainability of the completed Hyannis Ac-

cess Study with the goal of using the evaluation results to improve future corridor planning efforts on the Cape. In addition the Commission is using INVEST feedback to improve the preferred alternative identified through the Hyannis Access Study.

Staff first scored the project using all 29 criteria in the INVEST Urban Extended scorecard. Since this was a corridor planning study rather than an in-progress construction project, the project received no points under the criteria that focus on construction details and compliance. The resulting score was 25 points, or “Not Rated” (38 points are needed to achieve “Bronze”). Staff then scored the project using the INVEST Custom Scorecard. Since some of the 19 “core criteria” in the Custom Scorecard were not relevant to their project at this early stage, they used the 12 criteria that they found most relevant to corridor planning studies (see below for the 12 criteria and scores). The score of 25 would then achieve a “Bronze” level.

Criteria	Score
PD-3 Context Sensitive Project Development	5/5
PD-4 Highway and Traffic Safety	3/10
PD-5 Educational Outreach	2/2
PD-7 Habitat Restoration	0/3
PD-8 Stormwater	6/9
PD-9 Ecological Connectivity	0/3
PD-10 Pedestrian Access	2/2
PD-11 Bicycle Access	2/2
PD-12 Transit and HOV Access	1/5
PD-14 ITS for System Operations	1/5
PD-17 Energy Efficiency	1/8
PD-18 Site Vegetation	2/3

Based on the INVEST evaluation, the Commission developed several recommendations to improve sustainability in their future corridor planning studies:

- More thoroughly document the public participation process (PD-5).
- Better articulate decisions that were made prior to the study (for example, the decision to require a raised median to address safety) (PD-4).
- Include more detailed information on the appropriate design of stormwater, energy systems, lighting, freight accommodations, ITS and pavement materials in the study in order to guide project design in later phases and construction documents. For instance, Energy Efficiency is an area where the report could have earned the full 8 points available by including an evaluation of the energy needs of the project from lighting (1 point); specifying lighting facilities and systems that would reduce the projected energy consumption of the project (1 – 6 points); and establishing a plan to audit energy use after project completion (1 point). (PD-8, PD-17, PD-13, PD-14, PD-19)
- Similarly, pavement reduction and reuse strategies also could have earned more points, including: pavement preservation (1-4 points); reduce pavement materials (1-3 points); bridge preservation (2-4 points); retrofitting bridges (1-3 points); repurpose pavement or structures (1-3 points); and reuse industrial by-products (2-3 points). Goals toward pavement reduction, reuse, and recycling that capture these requirements would be an appropriate addition to the study and increase the likelihood of meeting these targets at a future design stage. Similarly, setting a goal to reduce energy and emissions in pavement materials by specifying low energy materials could earn up to 3 points. This would be an appropriate goal for a project in the conceptual stage. (PD-19, PD-20, PD-23)

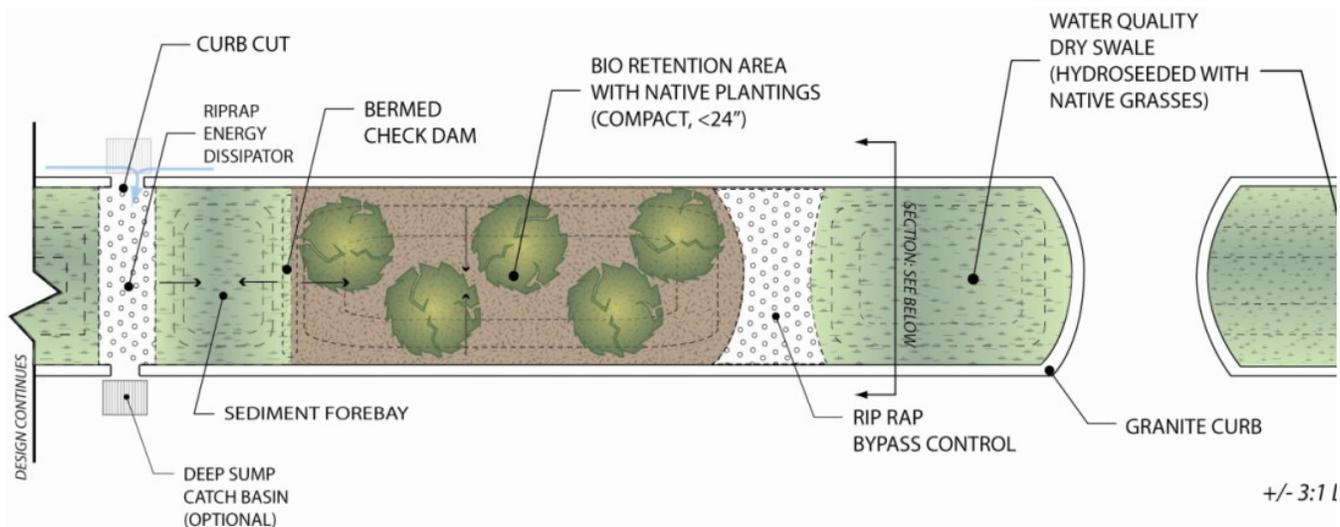


Illustration of stormwater practices.

Feedback for Improving INVEST

The Commission also provided useful feedback to FHWA on improving the INVEST tool such as adjusting the tool to better accommodate corridor planning studies, reconsidering the balance of points allocated, and adjusting the scoring to address the different areas of control of MPOs versus state departments of transportation (DOTs). The Commission also noted that some of the questions and allocation of points were not able to capture the unique environmental and seasonal issues that are important on the Cape. Understanding the challenge of developing a tool that has nationwide applicability, the Commission still felt that some recognition of regional priorities is important. The Commission also found it difficult when points were available for practices that were in conflict with regional priorities. For instance one of the practices for which an agency can score points under SP-10 Air Quality, is implementing dust controls, including paving unpaved roads, and strategies to control construction-related dust. On Cape Cod, the community has a goal to preserve unpaved roads as part of the historic heritage of the area. FHWA is incorporating this helpful feedback in updates to the INVEST tool, such as through a new “Innovation” criterion, a new scorecard for scenic and natural roads, and separating planning criteria for MPOs and state DOTs.

System Planning Module: Regional Transportation Plan

The Cape Cod Commission used the INVEST System Planning module to identify areas for potential sustainability improvements for the next regional transportation plan.

The current plan scored well on many aspects of the INVEST criteria as INVEST aligned well with the Cape Cod Commission’s goals. The Commission found that they scored lower on aspects of INVEST criteria that required defined performance measures. The overall score was 99 for the current regional transportation plan, giving the plan a “Silver” rating.

The Commission developed the following recommendations for their next regional transportation plan based on the INVEST evaluation:

- Develop quantifiable performance measures in multiple areas, such as land use and economic develop-

ment (SP-1).

- Consider using a standing technical advisory committee of in-house and outside environmental interests for the next plan update (SP-2).
- Better address public health considerations. (SP-7)
- Ensure that the planning process engages low-income, minority and limited English proficient individuals. The Commission is currently developing its Title VI program to improve in this area. (SP-3)
- Analyze vulnerabilities to climate change and extreme weather and incorporate resiliency considerations in the plan. The Commission is currently working on this through using a sea level rise viewer and identifying and prioritizing critical, vulnerable assets. (SP-17)
- Document the good work that goes on, but is not always captured.

Key Outcomes:

- Overall, INVEST proved to be useful for the Cape's transportation planning.
- INVEST feedback is being actively applied to improve the preferred alternative in the Hyannis Access Study.
- The INVEST workshops provided structured discussions of sustainability in a collaborative and multi-disciplinary setting.
- The INVEST assessment provided analysis that will allow for a regional transportation plan that will better address all areas of sustainability. The Commission will be including several new or expanded sections in the next regional transportation plan based on lessons learned through the INVEST scoring process.
- Cape Cod provided valuable feedback to FHWA on improving INVEST and specific ideas on how to modify INVEST to better accommodate scoring of corridor planning studies. Combining the feedback from Cape Cod, which used the Project Development module to score a corridor planning study, with feedback from the Washington State Department of Transportation, which used the System Planning module to score corridor planning studies, FHWA is working on improvements to INVEST to better evaluate these types of studies.