



Multi-Modal Paths in Rural Appalachia to Improve Local Transportation Opportunities: a Case Study

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Abstract

Transportation is a public health problem in the rural Appalachian region of the United States. Furthermore, access to outdoor physical activity facilities and transportation to schools is limited and difficult to establish. This case study aims to highlight assets and problems surrounding transportation in rural Appalachia and how advocacy for multi-modal lanes can be beneficial to address the important need to improve transportation. Improving multi-modal forms of transportation can provide many benefits within a community and can positively impact different populations. If we improve transportation, all health outcomes change. Additionally, new growth by way of multi-modal transportation creates demand for new housing, business, and community. Harmony Lanes is a local non-profit in rural Northwestern North Carolina formed to fulfill a mission: "Create safe, inclusive multi-modal infrastructure." Their purpose is to identify what worked in the past so that we (and others) can aim to replicate those steps in order to be successful. This case study examines the timeline and actions taken to organize people, the community, and leaders to make a small change in transportation to improve rural mobility in the Appalachians.

Keywords: Transportation; Multi-modal; Public Health; Rural; Appalachian; Collective Impact

Introduction and Background

Many assets and problems surround transportation in rural Appalachia. Having multiple methods of transportation can better serve a diverse population and their needs. Some common problems with transportation in rural areas include:

- Terrain is complex and therefore transportation routes can be impeded and difficult to develop.
- Lack of connectivity between businesses, schools, recreation centers, and other community happenings.
- Lack of options to get from one place to another.
- Low rates of employment.
- Strategy is often an afterthought.
- US culture values four-wheel vehicle transportation.

- Risks are high around transportation [1].

Improving multi-modal forms of transportation can provide many benefits within a community and can positively impact different populations [2]. Community involvement is more accessible for older adult populations, and there is an increased geographic area where they can live and still have that access [3]. Local businesses expand the number of people that can shop or dine at their establishments, and it provides more opportunities for people to work at these businesses [4]. Additionally, there are associations between active commuting and cardiovascular disease, cancer, and overall mortality [5]. Improving transportation also increases equity within a community, as people of a low socioeconomic status and individuals with disabilities have increased access to work and engage within the community [3]. Additionally, there are many factors that benefit all populations:

- a. Decrease in congestion of roads.
- b. Aids in managing a growing population.
- c. Decreases commute times.
- d. Increases parking opportunities.
- e. Improved road safety.
- f. Environmental benefits from reduced emissions [1].

There are great economic impacts associated to multi-modal paths. Evaluating the Economic Impact of Shared Use Paths in North Carolina (2018) was prepared by the Institute for Transportation Research and Education at North Carolina State University with Alta Planning and Design. The study looked at four greenways and found:

- a. An impact of \$19.4 million in total estimated revenue for local businesses;
- b. \$684,000 in total estimated sales tax revenue;
- c. Benefits from the one-time expenditure of \$26.7 million in trail construction are estimated at \$48.7 million in total business revenue and 790 jobs from construction;
- d. \$25.7 million impact from savings due to more physical activity, less pollution and fewer traffic injuries.

- e. For every \$1 spent on trail construction, \$1.72 annually is supported from those benefits.⁶

If we improve transportation, economic and health outcomes are impacted [5-8]. The Outdoor Recreation Economy found that bicycling participants spend \$83 billion on bicycle tourism sales in the United States [9].

This case study examines the timeline and actions taken to organize people, the community, and leaders to make a small change in transportation to improve rural mobility in the Appalachians.

Methods and Case Study Timeline

The mission of Harmony Lanes, a non-profit, is to create safe, inclusive, multi-modal transportation opportunities [10]. The board is committed to diversity and community inclusion. They are a group of parents, caregivers, advocates, educators, researchers, laborers, and more who want to see safe routes to school, work, and play. After developing the non-profit, mobilizing the community, and engaging with stakeholders, Harmony Lanes has been successful in establishing a multi-modal pathway extension to the town's greenway, improved the pathway to and around a local elementary school, rallied action to inform policy, and presented to multiple governing bodies to advocate for a feasibility study to develop a complete multi-modal pathway connection in the rural mountainous area (Figure 1).



Figure 1:

The Timeline of the Case Study

January 2019: Harmony Lanes formed to amplify a group of elementary school par-ents' voices related to the dangerous situation on a busy road next to the school. A petition was created and received over 500 signatures asking the town council to act immediately to resolve the problem. Harmony Lanes presented at a council meeting and as a result the council adopted a plan to add in sidewalks on both sides of the busy road, and the State's

Department of Transportation committed to building a HAWK crosswalk to connect them. February 2019: Harmony Lanes also started a campaign to get a mountain bike trail built at the elementary school with administration's leadership and support from local businesses and workers who donated the construction of the trail. It was built in March and has been expanded since. Additionally, the state's DOT announced the repaving and project on another road with high foot traffic and no multi-modal pathways (MMPs), sidewalks, or shoulders (Figure 2).



Figure 2:

Harmony Lanes took this as an opportunity to review the maps and transportation situation. It turned out to be a dangerous section of road, therefore Harmony Lanes proposed the East Boone Connector, a protected multi-modal path to serve the growing area, which is a very dangerous corridor for anyone not in a vehicle. This section of the county/town has been expanding rapidly and will continue to over the next few decades. A campaign was then developed, with branding and logos, which led to building community, business, and non-profit support through comments to the State's DOT. The State's DOT reacted to the comments submitted by adding in engineering to their plan for the East Boone

Connector to be built. March 2019: First loop of the elementary school mountain bike trail built by a local business and volunteers. Harmony Lanes and local business leaders presented the East Boone Connector proposal to the County Commissioners at their meeting.

April 2019: Harmony Lanes joined transportation advocacy organizations and at-tended events at the State's legislature. They met with state representatives to ask for more state funding for safe sidewalks, bike lanes, and other improvements in our area. Both were supportive (Figure 3).



Figure 3:

May 2019: The board chair recruited 6 other board members to Harmony Lanes who also share a passion for improving bike and pedestrian infrastructure in Boone. The board came together in May and went through missioning and visioning exercises, with support of local university experts. These exercises created our mission: Create safe, inclusive, multi-modal transportation opportunities. After this, they put together a first annual so-cial and celebration for National Bike to Workday. July 2019: Harmony Lanes put together a moving multi-modal path entry for the 4th of July parade and had a blast spreading the word. August 2019: Harmony Lanes received word that due to the advocacy and coalition building the State's DOT modified their plan for the East Boone Connector project. January 2020: Town Council unanimously supports revising/updating the

Bike/Ped Plan and the Cross Boone Connector (XBC) development.

Results

The following step by step guide is how the project was accomplished:

1. Had an idea based on evidence: To create a Multi-Modal Path (MMP) along roads scheduled for reconstruction.
2. Met with State's DOT to find out what it would take to get the MMP built (a 30% match but they couldn't tell us the amount of the project, not even a ballpark).
3. Built a team of like-minded, passionate, action-oriented individuals (Figure 4).

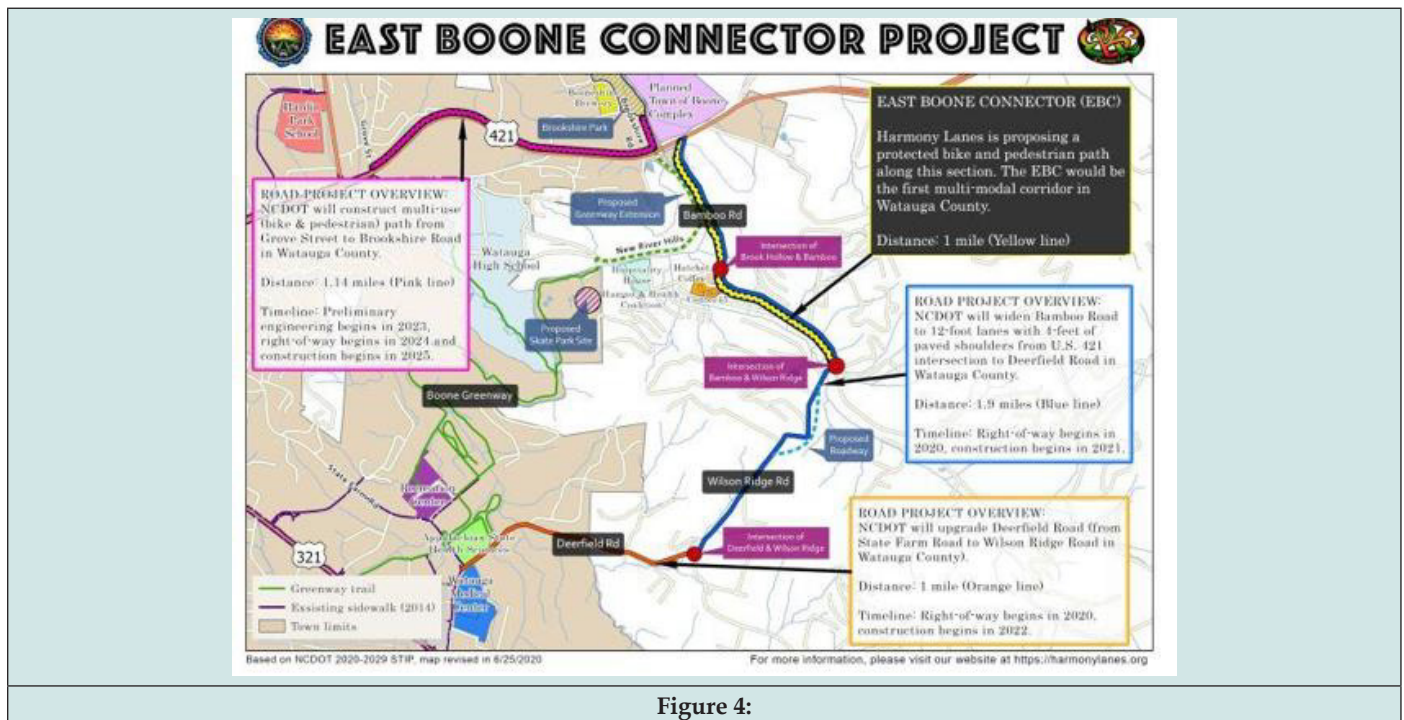


Figure 4:

4. Made a map of the potential project and wrote up a description of the idea.
5. Took the map to a nearby business with a similar interest.
6. Included the email address for where others could indicate their support for the project.
7. Created a logo/brand for the project.
8. Built a website and social media accounts for the organization and included the project there.
9. Met with elected officials to get support for the project (Note: Received support but no agreement to fund an undetermined 30% match).
10. Sent letters to stakeholders with actions.
11. Connected with other organizations, businesses and

partners asking to meet and then, in the meeting, for support and collaboration.

12. Wrote and distributed press releases in the area.
13. Had 500+ people send emails and indicate their support for the MMP.
14. And Jackpot! The State DOT agreed to create and fund the MMP.

The project connects food pantries, shelters, businesses, and neighborhoods.

Discussion

Through collective impact, community action, establishing a non-profit, and implementing a communication campaign, this group was successful in installing 2 MMPs and transportation

improvements in under two years in rural Appalachia. MMPs do take a bit of time to install, only the path to the elementary school has been fully built. It should be noted that MMPs connected to road improvement plans take significantly longer to fully execute.

After these successes, future areas for research and implementation include:

- a. The impact of the MMP installations.
- b. Who uses the MMPs and how often in rural Appalachia?
- c. Are there any changes in physical activity because of the MMPs?

Conclusions

In conclusion, communities should utilize this case study to potentially influence, improve, and install MMPs to improve transportation in rural Appalachia.

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