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EXPANDING THE INDIANAPOLIS CULTURAL TRAIL: A HEALTH IMPACT ASSESSMENT

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Abstract:

Background: Health Impact Assessments (HIA) are used to measure the effect of policies and/or projects that influence the health of populations. As a way to increase HIA practitioners, university courses in HIA can benefit both students and community organizations by presenting real-world opportunities for students to conduct HIA while partnering with community organizations or policy makers.

Methods: As a course assessment, students in a graduate-level public health course conducted a rapid six step HIA of three potential expansion routes of the Indiana Cultural Trail (ICT). The six steps were 1) screening, 2) scoping, 3) assessment, 4) recommendations, 5) reporting, and 6) monitoring and evaluation. To complete the HIA, students examined local health data, conducted walkability assessments, and conducted seven key stakeholder interviews.

Results: The analysis results show that the Riley Hospital Drive/Gateway Bridge (route 3) was the best potential route for expansion due to traffic safety considerations and the impact on residential parking in the adjacent Ransom Place neighborhood. In general, the key informants were in favor of the expansion, with the two most cited reasons being additional space for exercise and recreation and the potential economic impact and connection to local businesses in the area.

Conclusion: Through the course assessment, students determined the expansion across the proposed Gateway Bridge would combat parking issues associated with expanding the trail through Ransom Place as well as be the safest way for pedestrians and vehicle traffic to approach large intersections. The ICT trail expansion could lead to improved health outcomes by offering additional space for exercise, recreation, and active transportation.



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Introduction

Many populations in the United States face health disparities attributable to factors such as the environment, social inequality, socioeconomic status, and neighborhood attributes. For instance, lack of access to public services and healthy food options, as well as limited public transportation, can contribute to poor health outcomes (Ross, 2014). It is increasingly evident that the health of individuals and communities is largely shaped by the settings in which they live and work (Meyer, 2014; Robinette, 2017). In order to identify ways to alleviate and overcome health disparities in communities across the United States, communities need resources that will allow identification of the upstream root problems causing the disparities. One tool developed to guide this decision-making process is the Health Impact Assessment (HIA) (Pollack, 2014).

The National Research Council's Committee on Health Impact Assessment states, "HIA is an approach to assessing the risk factors, disease, and equity issues that create poor health outcomes" (Committee on Health Impact Assessment, 2011). Fundamentally, HIA is a mechanism that organizations and legislative bodies can employ to examine current and future policy proposals, programs, and projects to ensure that they will produce the intended health benefits. It should be noted that HIAs are used more to study projects and proposals that were not intended to have a public health benefit, but that nonetheless impact health (Ross, 2014).

As HIAs have become more common in the United States, university programs have developed courses that teach students about the reasoning and methodology behind HIAs. Oftentimes, students have the opportunity to apply the course content to analyze real-world programs in order to identify their potential health impacts. Frequently graduate programs are contacted by organizations to conduct HIAs for one of their projects or proposals before the organization begins work (Pollack, 2014). Students learning about

HIAs can provide a cost-effective service to community organizations that are interested in learning more about the impact of a problem. However, there are limitations associated with students conducting HIA. This paper demonstrates one example of a graduate-level course utilizing a real-world problem to learn about HIA, while offering results to a community partner.

Project Description

The Indianapolis Cultural Trail (ICT) consists of eight miles of urban bicycle and pedestrian trails in downtown Indianapolis, Indiana (Marion County). The trail connects neighborhoods and cultural districts within the downtown area to the larger greenway system of the greater Indianapolis area (Indianapolis Cultural Trail, Inc., 2017). Though the intent of the trail was to be a transit connector and act as a promoter for economic growth, previous assessments of the Cultural Trail show that exercise and recreation is a main reason why people use the trail (Indiana University Public Policy Institute, 2015). In order to continue serving residents and visitors of Indianapolis, ICT leaders plan to extend the trail northwest of downtown Indianapolis connecting it to Ransom Place, a residential neighborhood, and 16 Tech, a developing industrial park. During initial expansion planning, ICT wanted to examine three potential expansion routes that would connect Ransom Place and 16 Tech (Figure 1) (Table 1). All three proposed routes are within the same zip code.

Figure 1.

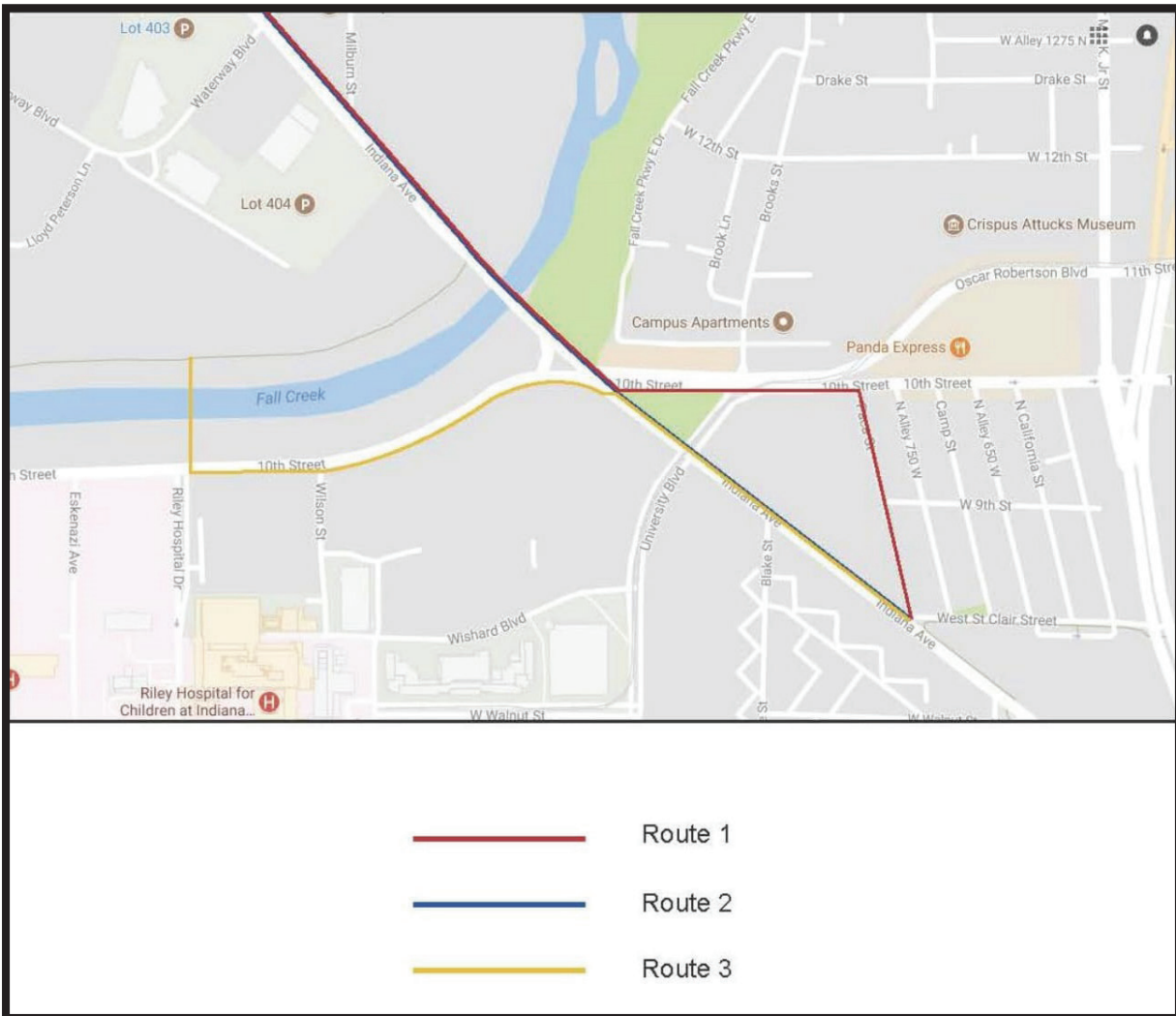


Table 1: Three Potential Expansion Routes

1. From the end of the trail at Indiana Avenue and St. Clair Street: Utilize neighborhood streets in the Ransom Place residential neighborhood to connect with 10th Street and cross the Indiana Avenue bridge in the direction of 16 Tech.
2. From the end of the trail at Indiana Avenue and St. Clair Street: Follow Indiana Avenue west to 10th Street and cross the Indiana Avenue bridge in the direction of 16 Tech.
3. From the intersection of Indiana Avenue and 10th Street: Follow 10th Street west to Riley Hospital Drive, cross 10th Street and head north into the developing river-front in the direction of 16 Tech (future Gateway Bridge).

The three route options are in close proximity to each other and all involve the Ransom Place neighborhood, which is directly adjacent to the Indiana University-Purdue University Indianapolis campus, a large medical center, and several area businesses. The area is compact with a great deal of traffic, including emergency vehicles, which exit and enter the neighborhood streets and nearby interstate system. Pedestrian and bicycle traffic is common in the area with students, staff, and employees commuting to work or class.

To examine the route options, ICT approached the Richard M. Fairbanks School of Public Health graduate-level Health Impact Assessment course to conduct a rapid health impact assessment of three potential routes. ICT sought to identify the safest, most usable, and least restrictive path for their extension route choice.

The HIA focused on the following questions:

1. What is the current health status of the resident population in the neighborhood?
2. Do neighborhood residents, employees, and visitors believe there is a better route among the three proposed routes?
3. Would an extension of the trail be utilized by the residents, employees, and visitors to the area?
4. Is one of the three options a better route when considering the health and safety impact of the residents, employees, and visitors of the area?

Methods

During the first week of the course, the ICT staff presented an overview of the ICT, the potential expansion routes, and the information they were interested in learning with the project. At that time, the class began examining the options for conducting a comprehensive HIA, including a standard HIA, which requires a substantial time commitment and primary data collection, and a rapid HIA, which uses already-existing and available data and resources (Mindell, 2003). Due to the short turnaround time (approximately five weeks to conduct and complete the HIA) and nature of the project, the class decided that the rapid HIA would be appropriate to assess the suitability of the three proposed routes. Students divided into three groups, with each group examining one proposed route option. Students followed a six-step rapid HIA process of screening, scoping, assessment, recommendations & reporting, and monitoring and evaluation (Ross, 2014) (Table 2).

In order to answer the key questions and complete the HIA, data were collected by three methods: 1) secondary data provided by the local health department and the CDC that detailed the basic demographic, chronic diseases, cause of death, and cause of hospitalization of the zip code, 2) students in the course conducted a walkability assessment of each potential route, and 3) conducting brief, iterative key stakeholder interviews that were guided by a standardized question list but not bound by those questions (Table 3).

Table 2: Health Impact Assessment Steps

Screening	Minimal screening was needed for this project as it was part of an assigned course. The ICT staff made an informative presentation to the class that outlined the need for the HIA. Students began to identify data sources and other resources to assist with the screening process.
Scoping	<p>With the limited time available to perform an HIA, students chose to focus on two issues affecting the health of residents and potential trail users, namely physical activity and safety. These were chosen due to the nature of the ICT being a center for physical activity. Additionally, safety is a concern for the area due to a large amount of traffic and pedestrians.</p> <ol style="list-style-type: none"> 1. Indianapolis continually ranks low in physical activity health-related outcomes on the American Fitness Index. Therefore, increasing access to physical activity options may lead to improve chronic disease health indicators of the affected population. 2. Vehicle and pedestrian safety is a concern for many of those living in the area and should be considered when attracting bike and pedestrian traffic to an area.
Assessment	<p>The assessment had three components:</p> <ol style="list-style-type: none"> 1. The current health status of the area was assessed using existing quantitative data from the local health department and CDC. Cause of death and hospitalization data were pulled for the zip code. This secondary data was prepared by an epidemiologist at the local public health department. 2. Each student group conducted a walkability survey to help evaluate the existing walkways of the area. These assessments were done in order for students to understand the walkability of the existing walkways and a first-hand look at the potential routes. This helped students to better understand the routes. 3. Non-formal, face-to-face interviews were conducted with seven key stakeholders in order to gather information, thoughts, and feelings about the ICT expansion from those who may be greatly impacted by the expansion. The interviews were conducted with a sample of residents, students, and employees of the area. The interviews were brief, lasting approximately 15 minutes each, and major ideas were documented in notes by the student(s). Students were prepared with a list of interview questions, however they interviews were iterative, allowing for the stakeholder to detail the important aspects of the ICT trail expansion in his or her own words.
Recommendations & Reporting	The HIA team developed an initial set of four main recommendations and four secondary recommendations for ICT. A final report was submitted to ICT.
Monitoring & Evaluation	Due to time constraints of the course, only recommendations for monitoring and evaluation could be made to ICT.

Table 3: Question Guide for Key Informant Interview Questions

Stakeholder Interview Questions	Summary of Stakeholder Responses
1. Do you currently use the sidewalks along Indiana Avenue between St. Claire Street and the bridge that crosses over Fall Creek into 16 Tech?	For each section of the trail, most respondents stated that they were familiar with the sidewalks of the proposed routes.
2. If yes, how frequently do you use the sidewalks?	The responses for frequency of use differed, but most use was due to small commutes several times a week.
3. If yes, in what capacity do you use sidewalks? For pleasure? For transit to work? For exercise?	Respondents currently use the sidewalks in the area during their work day to get to and from different locations, such as eating establishments.
4. Do you use the Indianapolis Cultural Trail?	Respondents stated that they had used the Cultural Trail.
5. If yes, how frequently do you use the trail?	The responses for frequency varied from a few times a week to a few times a year depending on proximity to the existing trail.
6. If yes, in what capacity do you use the trail? For pleasure? For transit to work? For exercise?	Respondents typically only used the existing portions of the trail on special occasions for pleasure, especially if the respondents did not live in the vicinity.
7. How do you feel about extending the Indianapolis Cultural Trail along the proposed route (students explained route options)?	Respondents were positive about the proposed expansion and saw it as a means to increase foot traffic to area businesses as well as for feasibility in healthy transportation. Those living along route 1 only opposed the routes extension through the Ransom Place neighborhood. Many respondents felt that extending the trail along route 3 would help to divert pedestrian traffic away from vehicular traffic at the intersection of Indiana Ave. and 10th St. Riley Hospital Drive was most the most popular choice.
8. Would you use the trail more if more sections were added?	Respondents unanimously expressed their interest in more frequent use if the trail were extended.
9. If yes, for pleasure? For transit? For exercise?	Respondents would mostly use of the trail for pleasure and transit.
10. What do you see as the advantages to extending the Indianapolis Cultural Trail along route specified earlier?	Most respondents commented on the increased economic advantages that the trail would provide, such as the potential for more restaurants, shops, and jobs.

11. What do you see as disadvantages to extending the Indianapolis Cultural Trail along the routes?	Respondents commented on the potential cost the trail could incur for the build and other costs for related structural changes, such as road repairs for connected streets.
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Results

Resident Demographics and Characteristics

The three potential routes fall within the 46202 zip code in Indianapolis, inside Marion County (Table 4).

Table 4: Demographics of the Population in the 46202 Zip Code (2010)

Variable	n (%)
Total Population	16335
Median Age (years)	30.4
Sex	
Female	7397 (45)
Male	8938 (55)
Race/Ethnicity	
White	9043 (55)
Black	5802 (36)
Other/Don't know/Refused	1490 (9)
Hispanic/Latino	605 (4)
Median Household Income (dollars)	\$32,186

Note: (Marion County Public Health Department, 2017)

Public health data show that residents living in the 46202 zip code fare better than the rest of the county with regard to hospitalizations and deaths from heart disease and stroke. However, there is a higher rate of death from diabetes reported (26 per 100,000 vs 20 per 100,000) (Marion County Public Health Department, 2017). In 2017, the overall prevalence of diagnosed diabetes for Marion county, which houses the Indiana Cultural Trail expansion, was 10.2%, which is higher than the 9.2% prevalence rate of diabetes for Indiana (Center for Disease Control, 2017). Likewise, deaths due to hypertension were 239.6 per 100,000 people, which is significantly higher than the national average for 219.8 deaths per 100,000 (CDC, 2017). Additional local data shows that life expectancy of those residents in the geographic area is 69.4 years, which is 14 years lower than those living 28 miles north of the area (Weathers, 2015).

Walkability Assessment

Each group conducted a walkability survey (Health by Design, 2009) that consisted of five sections to assess quality of walkways, intersections and crosswalks, safety, and accessible amenities in the area. The main findings from the walkability surveys were: 1) portions of existing sidewalks were not in good repair due to cracks, uneven pavement, and disconnection to other pathways, 2) all three route options included existing major intersections that are challenging for pedestrians to use due to fast moving traffic from multiple directions, and 3) the proposed routes will all lead pedestrians to local amenities, such as residential areas, restaurants, and hospitals. The main finding resulting from the walkability assessments was the examination of the large intersections that feed vehicle and pedestrian traffic through the area.

Key Stakeholder Interviews

Seven face-to-face key stakeholder interviews were conducted including two employees of local businesses who drive, walk, and work in the area; the president of the local Ransom Place neighborhood association who represents Ransom Place residents; a state senator

who represents the local area; a local church leader located in the neighborhood; a patient who utilizes a local hospital and drives, parks, and walks in the hospital area; and a college student who lives in the neighborhood and attends the adjacent university. Stakeholders were chosen because they live, work, and/or are a community member of the local area that could be affected by the expansion. Additionally, they were chosen because of their quick accessibility, which was required due to the limited project timing.

Interviews were brief, lasting approximately 15 minutes each.

A summary of the main findings of the key stakeholder interviews were as follows (see Table 3 for summary of interview responses):

1. All but one of the seven key stakeholders stated they were in favor of the ICT expansion project. The one who opposed the ICT expansion suggested that gentrification would be possible and that already existing parking issues in the area would be heightened.
2. After an overview of the three potential routes during the interview, those in favor of the ICT expansion all agreed that the Riley Hospital Drive expansion route (future Gateway Bridge) would be the best route as long as it was safe to use.
3. The economic benefits of connecting the area with 16 Tech could be beneficial to residents, employees, and businesses by driving more pedestrian traffic to local businesses.
4. The new expansion would allow for additional walking/biking paths that can be used for transportation, exercise, and recreation.

Recommendations

After conducting the HIA steps, four key recommendations were proposed and four secondary recommendations proposed (detailed in discussion section) to the ICT.

1. After discussing the current options with the

engaged stakeholders, students determined that expanding the trail to use west 10th Street and the proposed Gateway Bridge (option 3) would provide the easiest connection and safest route for trail users. Likewise, the new proposed path would link other existing pedestrian and bicycle trails from the west, south, and north of the general area. This would avoid disrupting the Ransom Place neighborhood and any potential parking issue in the area that a new trail might cause.

2. In order to monitor the expansion and use of the trail, ICT trail should conduct pedestrian and bicycle counts to track types of use, times of high and low usage, and whether or not the extension of the trail sees increased pedestrian use after the linkage with 16 Tech. Additionally, ICT should track trends in property development both along the Indiana Avenue corridor and in 16 Tech for use in future trail development. Increased employment opportunities, healthier eating establishments, grocery store, and other resource development should be documented should those entities be implemented.
3. Indianapolis Cultural Trail Inc, should work in tandem with the Marion County Public Health Department to identify and compare health-related data and automobile collision data within the 46202 zip code and immediate geographic area during and after the trail expansion. The Indianapolis Transit Authority should be consulted for data pertaining to changes in mass transit use along the corridor as well as changes in frequency and timeliness of mass transit options.
4. Finally, future HIA or evaluation courses should conduct an evaluation of the trail expansion during a future semester in order to monitor changes in health and the economy along the path as they look at implementing new long-term HIAs for other trail expansions.

Discussion

Conditions that promote health in places where we live, work, and play can have an important impact on the health status of Americans. HIAs can assist decision makers with determining the best options that allow for the promotion of health of those impacted by the planned policy or project. HIAs help to connect scientific data, public input, and health expertise to guide decisions (Pew Charitable Trusts, 2017). This rapid HIA was conducted in order to 1) provide students taking the graduate-level HIA course experience with conducting a real-world assessment, and 2) produce recommendations for the ICT.

The key stakeholder interviews allowed for in-person one-on-one conversations to happen with those most-likely impacted by the proposed trail expansion. Although the majority of those interviewed were in favor of the expansion, stakeholders stated that the trail could negatively impact the Ransom Place residential neighborhood. One interview participant suggested that the development may lead to gentrification. With the potential to increase economic activity in this area of the city, it is critical to emphasize the importance of policies to promote mixed income housing to discourage immediate gentrification (Read, 2017). Other parts of the city with a current railway saw vast gentrification, and the housing prices rose quickly leaving many low income residents without the ability to afford their homes. Because income and housing can be significant drivers of overall public health, researchers recommend that planners work with city officials to draft policies protecting current residents. To help overcome concerns of disconnectedness that the ICT expansion may have on local residents, one stakeholder suggested that the newly expanded trail include local artwork or historical markers by saying, “It would be great; I would want to walk it if it’s close to work; I would like having that area developed to look useable and pretty—it would make me happy to use it. It would benefit my quality of life; it is safe and pleasant to use.” In order to educate local residents

about the historical significance of the area, planners should include local art, specifically art relative to the African American community who first settled the area and continue to inhabit it. In order to inform trail users of the area, additional signage should be added along the trail to indicate the historic neighborhood of Ransom Place and informational signs would be useful in maintaining the deep history of the area.

The ICT plays an important role in exercise and recreation for users. Marketing and promotion of the cultural trail expansion should be used to promote use in order to increase physical activity. In cities similar to Indianapolis, having a well developed network of biking and walking trails increases walkability and bikeability, thereby increasing physical activity for all residents (Brownson, 2000). Recent studies have found that walkability is a highly significant predictor of physical activity independent of individual behavior and even socioeconomic status (Sallis, 2009). Many studies have shown the importance of infrastructure in increasing walking and cycling mode shares. Cross-sectional studies consistently show a positive correlation between bike facilities and cycling (Pucher, 2010). Dill (2003) found each additional bikeway mile per square mile is associated with a roughly one percent increase in bicycle mode share.

Safety was also a main concern for the ICT and the key stakeholders who live and/or work in the area. As each of the three potential routes include large intersections and city streets that carry a large volume of fast moving traffic, it is important for the expansion planners to consider safety as a main priority. Safety education is an important aspect of both public safety and encouraging physical activity in potential trail users. Safety training programs improve pedestrian skills such as timing and choosing safe crossings (Killoran, 2006). Marketing programs have been successful in promoting individual behavior change. Such programs can increase the use of alternative modes by 10-25 percent (Victoria Transportation Policy Institute, 2010). These evidence-based recommendations are potentially useful in

Indianapolis and are easily applicable to the expansion of the cultural trail.

This project had several limitations. First, because the course was a six-week intensive course, there was a limited amount of time in which students could conduct this rapid HIA. Although the course was six weeks, students had approximately five weeks to design, implement, and report the findings of the HIA. If time would have allowed for a full HIA, more in-depth primary data could have been collected that might show a more direct health impact of the expansion. Second, as students implemented the HIA plan, students determined there were gaps in the data collection plan, such as the interview guide did not match the need for the stakeholder interviews and limited data for the specific area of interest. In order to accommodate for these items, students made adjustments as they went along with the guidance of the course instructor. The health impact-related outcomes could not be thoroughly examined in the allotted time frame and with the existing student resources. The recommendations were a product of the planned data collection, but there were unforeseen gaps in the planning and data collection processes which led to less rigorous findings as could have been expected in a full HIA. This was due to the lack of student experience conducting HIA. Third, characterization impact assessment was not made for each of the factors affecting the three routes. Impact characterization is an important step to allow for an overview of the full project. This step should be completed if time allows in any future HIA of the ICT. Finally, the potential ICT expansion routes were already identified prior to the HIA taking place. There could be additional routes that may have a different impact on the area.

Implications for Practice

This project allowed graduate students to have hands-on experience conducting a rapid HIA in the real world with potential impact on the project. The outcomes of the HIA were meaningful, and contribute to the ICT

organization's planning process for future expansion of the route. Likewise, this HIA demonstrates the importance of engaging communities most affected by proposed projects, as they provide valuable insight to unintended consequences of community based projects. The HIA project serves as an example for other academic courses that focus on HIA. Students can use this as a reference or case study for future studies.

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Figure Legend

Figure 1: Map of Three Proposed Expansion Routes

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