PROPOSAL TITLE

Rural Gentrification and the Spillover Effect: Integrated Transportation, Housing, and Land Use Challenges and Strategies in Gateway Communities

PRINCIPAL INVESTIGATORS

PI: Danya Rumore, University of Utah

Co-PI: Philip Stoker, University of Arizona

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# ABSTRACT

Small towns and cities near national parks, public lands, and other natural amenities throughout the west are experiencing rapid growth and increased visitation. These “gateway communities” comprise a significant portion of the rural west, constituting about 31% of all communities in the U.S. Mountain West and more than 60% of those under 25,000 people. Our prior NITC-funded research shows that growth and increased tourism create a range of “big city challenges” for gateway communities, particularly a significant increase in housing prices, which pushes the local workforce to outlying areas and other rural communities. As a result, despite being small towns, many developed gateway communities have large commuter-sheds and more employees who commute into the community than employees who live and work in the community. Our observations suggest this rural gentrification and its related spillover effect results in longer worker commutes, higher transportation costs, and impacts on transportation infrastructure, land use, access to opportunity, mobility, equity, and quality of life in these rural towns and cities and the regions around them. Our observations also suggest this trend has intensified in the last year and is now rapidly playing out across the rural West due to COVID-19, which has expedited amenity migration and resulted in the “Zoom Town” phenomenon of remote workers relocating from high-income urban areas to rural towns and cities. While we have plenty of anecdotal evidence that this is happening and creating profound impacts throughout the rural West, our understanding of these dynamics in gateway communities and appropriate solutions for addressing them is limited. To address this gap, we propose to study the extent to which gateway communities throughout the West are experiencing interconnected housing, transportation, and land use challenges and how increased visitation and growth affect these issues. We also will explore the innovative things these communities are doing to respond and what can be learned from their experiences for small and large communities throughout the country. We will do so through conducting a regional survey of over 1,800 western gateway communities; in-depth case studies of 6-10 gateway communities that are “out front” in experiencing and/or responding to these issues; and a series of workshops with gateway community representatives from across the West. We will also use Census data to map commuter-sheds and analyze growth and development trends in these places. The results of this study will be used to produce tools, guidelines, and policy recommendations to assist gateway communities and other rural and urban communities in tackling their interconnected housing, transportation, and land use concerns. This study will also allow us to develop a longitudinal database on planning and development challenges in western gateway communities, which are some of the most rapidly growing and changing areas in the United States, a trend that is likely to continue with major implications for local, regional, and national transportation systems, infrastructure, and economics, as well as the broader western landscape.

LITERATURE REVIEW

Our prior NITC- funded research demonstrated that small, rural communities near national parks, public lands, and other natural amenities (i.e., “gateway communities”) throughout the West are becoming highly desirable places to live and visit. As a result, many of these places—which constitute 31% of all communities in the U.S. Mountain West and 61% of those under 25,000 people—are experiencing a range of “big city problems,” including major issues associated with lack of affordable workforce housing, cost of living, and income inequality (Stoker et al. 2021). As in urban areas, these issues appear to be heavily tied to transportation, mobility, and land use concerns. In particular, the increasing cost of housing in gateway communities appears to be forcing workers—including teachers and even doctors—to relocate to surrounding areas. This rural gentrification and related spillover effect heavily impact land use patterns and transportation infrastructure, limit access to opportunity, and affect mobility, equity, and quality of life in these communities and the regions around them (Rumore et al. 2019; Stoker et al. 2021; Stuber 2021; Pilgeram 2021). Our ongoing engagement with rural communities suggests that COVID-19 has accelerated amenity migration to and increased visitation of gateway communities in the West and elsewhere, expediting rural gentrification and the displacement of workers. While we have plenty of anecdotal evidence of the interconnected housing, transportation, and land use challenges gateway communities throughout the West are experiencing, little academic attention has been paid to these communities and our understanding of these dynamics in gateway communities and appropriate solutions for addressing them is limited.

Prior studies have noted issues associated with housing in gateway communities. Most prior studies examine housing demand, looking at the increase in second-home ownership and amenity migration (Ghose 2013; Gosnell and Abrams 2011; Nelson and Hines 2018; Ulrich-Schad and Qin 2018; Stephanick 2008; Winkler and Marcouiller 2015). Research on the supply side of housing in gateway communities, especially as it pertains to equity of access to housing and workforce housing, is very limited. The work that has previously been done suggests that land use patterns in amenity communities drive housing costs and distribution of housing stock (Darling 2005; Nelson and Hines 2018). While this literature provides some insight into housing supply and accessibility, it does not explore the connection between transportation and housing. Nor does it look at housing issues across gateway communities to identify larger trends. Similarly, prior research has identified a variety of transportation issues in gateway communities and regions but has not drawn a connection between transportation, housing, and land use. Existing studies largely focus on transportation issues within nearby national parks and other public lands, rather than in gateway communities themselves (Daigle 2008; Mace et al. 2013; Mace 2014). Transportation research that has addressed gateway communities has tended to look at engineering and technological implementation (Wang et al. 2016; Daigle 2008; Dunning 2005; Mace 2014). Notably, prior studies largely focus on visitors, rather than residents and workers, as the main transportation users (Dilworth 2003; Daigle 2008; White 2007; Mace et al. 2013). We have not found any studies addressing the fact that, as they develop, gateway communities tend to become economic hubs, often with substantial commuter-sheds. Existing research also provides little if any insight into housing, transportation, and land use solutions for these “small towns with big city problems.”

While the displacement of workers and creation of commuter-sheds around metropolitan areas is well-studied, we have reason to believe the applicability of that research to gateway communities is limited for several reasons. First and foremost, small, rural communities—even those with reasonably high tax revenue—have far fewer resources to plan for and create transit and other shared, multi-modal transportation systems than major urban areas do. Additionally, programs and funding sources that are available to larger cities are often not available or appropriate for smaller communities, limiting their options for dealing with these issues. Gateway communities also typically identify with their rural, small-town character (Stoker et al. 2021); this greatly affects the acceptability of certain housing, transportation, and land use interventions that are common in urban areas. Further, interconnected housing, transportation, and land use issues remain a significant challenge for many urban areas and we believe cities throughout the country may be able to learn from the experiences of western gateway communities, many of which are experimenting with innovative housing and transportation approaches.

This study will address these gaps by exploring the extent to which gateway communities throughout the West are experiencing interconnected housing, transportation, and land use issues; how they are responding; and what rural and urban areas throughout the country and internationally can learn from their experiences.

# THEME AND FUNDING GOALS

The findings of our 2018 NITC-funded study highlight the fact that gateway communities, which constitute a significant portion of the western United States but have thus far been understudied, tend to experience interconnected housing, income inequality, and transportation challenges as they develop. Our results also suggest these issues are directly tied to regional land use concerns and present a key threat to mobility, access to opportunity, equity, and the overall economic and social wellbeing of these towns and cities and the regions around them. Our observations suggest that shortages of housing and cost of living issues disproportionally affect minority and lower economic status populations in gateway communities (which often have surprisingly racially, ethnically, and socio-economically diverse populations for rural western communities). Through examining the interconnected housing, transportation, and land use challenges being experienced by gateway communities and what these places are doing to respond, we anticipate this study will generate insight into barriers to access and illuminate ways to improve and protect accessibility, affordability, equity, and quality of life in gateway communities and other rural and urban communities throughout the country. We also anticipate this study will illuminate the need for, innovative approaches for, and barriers to the development of regional multi-modal transportation and shared use of infrastructure in high-natural amenity regions (whether rural gateway regions or the Cottonwood Canyons abutting Salt Lake Valley in Utah). This study will produce data and tools to assist gateway and other communities in understanding their interconnected transportation, housing, and land use challenges and ways of effectively planning for and responding to these challenges. Related to that, we anticipate this study will shed light on novel and inventive mobility options and ways of collecting traveler data that might inform approaches used not only in gateway communities but also in metropolitan areas. Further, the results of this study—in conjunction with our team’s ongoing National Science Foundation-funded research—will help us work toward creating interactive models and planning support tools that can be used by gateway communities throughout the West and nationally (as well as perhaps by other kinds of communities) to plan for growth, visitation, and development pressures and external shocks, such as the impacts of COVID-19 and related impacts on visitation, service economies, and amenity migration.

# BACKGROUND AND OBJECTIVES

Our 2018 NITC-funded study on planning and development challenges in western gateway communities identified affordable housing as a pressing challenge across these rural towns and cities. All of our interviewees and 83% of our 333 survey respondents identified housing affordability as a moderate to severe problem for their community (Stoker et al. 2021). As one interviewee put it, “I think affordable housing is the biggest thing. Not just affordable housing, but actually LIVABLE affordable housing. Right now, housing is a crisis.” Our prior study also illuminated the interconnectedness of transportation, housing, and land use issues in gateway communities. For example, interviewees commonly noted how housing demand in gateway communities tends to spill over into outlying areas, which increases commuting and results in impacts on transportation systems, land use patterns, quality of life, mobility, and access to opportunity. As one interviewee said, “Part of the reason we have traffic issues is because people are moving farther and farther away to where they can afford to live.” Further, we know from ongoing engagement with gateway communities throughout the West that these issues have been exacerbated by and become more pervasive due to COVID-19-related amenity migration and the “Zoom Town” phenomenon of remote workers relocating to high amenity rural areas. We also know from our prior research and ongoing work with gateway communities that many of these places are trying innovative approaches for responding to their transportation, housing, and land use concerns. We believe that these “small towns with big city problems” provide valuable laboratories in which to study interconnected housing, transportation, and land use challenges and explore novel strategies for addressing them. We think cities of all shapes and sizes across the country have a lot to learn from the efforts and experiences of these places. Further, we know these communities are eager for help with their interconnected transportation, housing, and land use issues.

Based on the results of our prior study and ongoing work with gateway communities, we have developed the following postulates and related research questions, which we propose to test through this study:

1. As gateway communities experience growth and development pressure, they seem to experience a predictable set of interconnected transportation, housing, and land use issues, including rural gentrification and the development of commuter-sheds, which in turn impact regional transportation systems, mobility, equity, access to opportunity, the surrounding environment, and quality of life.
	1. To what extent is this the case across all western gateway communities?
	2. What level of growth, development, visitation, and/or other factors are associated with the displacement of workers and/or housing and transportation system failure?
	3. What impacts do these interconnected transportation, housing, and land use issues have and how can those impacts be mitigated?
	4. How well, if at all, do gateway communities understand where their employees live and related implications, such as for regional transportation systems and housing programs?
2. Highly developed gateway communities are doing a range of innovative things to understand and address their interconnected transportation and housing issues. They also appear to be engaging in, or at least trying to engage in, transportation planning at a regional scale.
	1. To what extent is this the case across all western gateway communities?
	2. What solutions are being explored, how are these solutions working, and what can be learned from these efforts for other gateway communities and other rural and urban communities throughout the country?
	3. What are the implications, impacts, and tradeoffs of different strategies?
	4. What roadblocks and barriers are gateway communities encountering in their efforts to address interconnected housing and transportation issues, and what can be done to address them?
	5. What data, resources, and planning support have been or would be helpful to assist these places in effectively tackling their interconnected planning, transportation, and land use issues?

The results of this study will be used to develop case studies, lessons learned, methods, and guidelines to assist gateway communities and other rural and urban communities in tackling their interconnected transportation, housing, and land use concerns. We also anticipate this study will result in local, state, and national policy recommendations. This study will also greatly advance research on planning and development challenges in gateway communities, particularly through shedding light on solutions and strategies.

# METHODOLOGY AND DATA COLLECTION

This study will employ a mixed methods approach, which will include the following overlapping efforts:

**Update gateway community database and contacts:** Prior to our NITC-funded 2018 study, there was no established measurable definition of a gateway community. Drawing on past research and thinking, we defined gateway communities as communities of less than 25,000 people that are 1) within 10 linear miles of the boundary of a national park, national monument, national forest, state park, wild and scenic river or other major river or lake, and 2) further than 15 miles from a census-designated urbanized area by road (see Stoker et al. 2021 for more explanation). For our 2018 study, we used GIS to identify all communities that fit this definition between the western side of the Sierra Nevada Mountains and the eastern side of the Rocky Mountains in the U.S., which produced a total of 1,522 western gateway communities. We then utilized publicly available records to identify public official contacts in as many of those communities as possible, for a total of more than 1,200 contacts. We have since expanded our gateway community database to include communities reaching all the way to the Pacific Coast, not just the western side of the Sierras; the database now includes more than 1,800 communities that fit our gateway community definition. We will once again engage students in utilizing publicly available records to update the public official contacts in our gateway community database and to identify contacts for the communities that have been added since 2018. We will also utilize the email listservs of the Gateway and Natural Amenity Region (GNAR) Initiative (<https://www.usu.edu/gnar/>) and GNAR Initiative partners—such as the Idaho Chapter of the American Planning Association, the Colorado Association of Ski Towns, and Community Builders—to help populate our list of gateway community public official contacts. We will include contacts for elected officials, transportation and housing professionals, planners, and city administrators in gateway communities.

**Regional survey:** Using our gateway community database, we will administer a regional survey to examine the extent to which gateway communities across the West are experiencing interconnected transportation, housing, and land use issues and how these places have been affected by COVID-19-related changes in amenity migration and visitation. The survey will also explore what, if anything, these communities are doing to address transportation, housing, and land use challenges, barriers they are encountering along the way, and how interventions appear to be working. The survey will also assess whether these communities have reliable information on their commuter-sheds and what information, resources, and planning support might help them address their interconnected transportation, housing, and land use issues. While we have broad data on some of these subjects from our survey conducted in 2018, this survey will gather more in-depth information on these topics to allow us to address our above-listed research questions. Additionally, we know from observation that many gateway communities have grown and/or experienced increased visitation since 2018—some of them quite drastically, especially in the aftermath of COVID-19—and many are much farther along in experiencing and/or responding to housing, transportation, and land use issues now than they were three years ago. This new survey will allow us to collect up-to-date information on the status of planning and development challenges in western gateway communities, thereby creating a longitudinal dataset that we can use to explore changes over time in these communities, some of which are among the fastest growing areas in the United States. We will send the survey to all the public official contacts in our gateway community database. We will administer the survey online using Qualtrics software, which worked well for our last survey.

**Census data analysis:** In tandem with our regional survey efforts, we will obtain up-to-date U.S. Census data on growth rates, average housing prices, rental prices, and other key variables for all communities in our gateway community database. We will analyze this data to explore overall trends in western gateway communities, how growth and development trends map onto our survey results, and how growth and development trends in gateway communities compare to those in other rural and urban communities.

**Case studies:** We will conduct 6-10 in-depth case studies of gateway communities that are out front in experiencing and/or dealing with interconnected transportation, housing, and land use issues. The exact number of case studies we complete depends on how many students we engage via the GNAR Lab and workshop course (see Tasks 6 and 7 below). For each case study community, we will first map their commuter-shed, as described below. We will simultaneously collect and analyze local and regional transportation and housing studies, plans, and other relevant documents; we will work with community partners and use online research to identify key studies, plans, and other relevant secondary data for each community. We will then conduct semi-structured in-depth interviews with approximately 7-10 key informants for each case study community, such as local and regional planners and transportation and housing professionals. Interviews and secondary data analysis will be used to explore how these communities and the regions around them are experiencing, trying to understand, and working to address transportation, housing, and land use issues; how their interventions appear to be playing out; what challenges they have encountered in addressing these issues; what information, resources, and planning support have been or would be helpful for their efforts; and what recommendations and lessons learned can be derived from their experiences. We will work with our community partners in each case study site to identify appropriate interviewees who can provide diverse perspectives on regional housing, transportation, and land use issues. We will then identify additional interviewees via the snowballing method. Primary and secondary case study data will be coded and analyzed using ATLAS.ti software. The results from each site will be written up as a stand-alone case study that shares the story of the community and highlights generalizable findings from the community’s experience and efforts. For each case study community, we will also produce locally specific recommendations based on our analysis, which will be presented to community partners and other key stakeholders.

**Commuter-shed mapping:** We will map the commuter-shed for each of our case study communities using U.S. Census LODES data (<https://lehd.ces.census.gov/data/>); see Figure 1 below for an example. Preliminary LODES data analysis shows remarkable commuting trends for many gateway communities, with some of these small, rural communities having more than 70% of their workforce commuting into the community for work. During case study interviews, we will explore the extent to which key informants in each community understand the community’s commuter-shed, whether the LODES mapping aligns with that understanding, and the extent to which LODES commuter-shed mapping is helpful for these communities and their planning. These conversations will help us vet the use of LODES data for commuter-shed mapping in gateway communities and explore how well these communities understand their commuter-sheds. We will use what we learn to develop tools to help other communities analyze and visualize their commuter data, which we will share via the GNAR Initiative toolkit (<https://www.usu.edu/gnar/toolkit>).

**Peer-to-peer gateway community workshops:** We will work closely with our case study communities and other partners throughout this project. At the beginning of the project, we will host a kick-off workshop for case study communities and other project partners to provide them an opportunity to review the plans for the study, provide input and ask questions, and connect with and learn from one another. We will host additional workshops for our community partners throughout the project, during which we will provide project updates, get partner feedback on plans and products, and facilitate peer-to-peer dialogue about transportation, housing, and land use issues and strategies. We will also host peer-to-peer workshops and webinars for a broader gateway community audience via the GNAR Initiative. We will take detailed notes during these workshops and use these notes as additional data for our study.

**Data synthesis, analysis, and dissemination:** Upon completion of all case studies, we will analyze our findings across sites. We will then compare our cross-site results with the findings of our regional survey and peer-to-peer workshops to generate results and policy and planning recommendations; we anticipate this study will produce local, regional, state, and federal recommendations. We will share our results and recommendations via academic journal articles, popular media articles, presentations, and white papers/briefs, with the intent of making this information readily available to public officials in gateway communities and other urban and rural areas, policymakers, transportation and housing professionals, NGOs, and academics. We will also host free interactive webinars via the GNAR Initiative to share our results and tools with a broad audience; these webinars will be recorded and will be posted on the GNAR Initiative website (https://www.usu.edu/gnar/). All case studies and other products will also be shared via the GNAR Initiative’s website.

# TASKS, SCHEDULES, AND PRODUCTS

**Task 1: Update gateway community database and contact list (June—September 2021):** We currently have a team of four graduate students working on updating our database of contacts for public officials in over 1,800 western gateway communities. The students are working under the guidance of Dr. Rumore and Dr. Stoker. The contact database will be completely updated by September 2021.

**Task 2: Design, administer, and analyze regional survey (October—December 2021):** We will develop a survey instrument to explore the above-described topics. This survey will be administered electronically to all the public officials in our gateway community database. Based on our prior study and ongoing engagement with gateway communities, we anticipate a 25% or higher response rate for a total sample of roughly 400 responses from 350 or more communities. Dr. Rumore and Dr. Stoker will lead the development of the questionnaire that will be used for the survey, with input from graduate students working on this project and project partners. The survey will be administered by Dr. Stoker, who administered our 2018 survey. Dr. Stoker and the students under his supervision will analyze the results of the survey using SPSS software.

**Task 3: Obtain and analyze Census data (October—November 2021):** We will obtain 2020 Census data for the communities in our gateway community database. We will use Census data to examine growth and development trends across gateway communities and to cross tabulate our survey results. We will also collect updated Census data on non-rural gateway communities and urban communities and will compare trends in gateway communities to those in other kinds of communities. We already have 2018 American Community Survey data for the gateway communities in our database as well as western non-gateway rural communities, which will allow us to easily examine trends over time in these different types of rural places. Dr. Stoker will lead these efforts, with help from the students under his and Dr. Rumore’s supervision.

**Task 4: Convene and facilitate community partner workshops (October 2021—October 2022):** We have already identified potential case study communities, which will include Aspen, CO; Springdale, UT; Moab, UT; Whitefish, MT; and Jackson, WY; as well as potentially Breckenridge, CO; Park City, UT; West Glacier, MT; Sandpoint, ID; McCall, ID; Lake Tahoe, CA; and/or Sedona, AZ. We have formalized partnerships with many of these communities (see attached cost match letters). To kick-off this project, we will convene a professionally facilitated workshop for case study partner communities in October 2021. During this workshop, we will review plans for the study, answer questions, get feedback to help refine our study approach, and provide an opportunity to our partners to engage in peer-to-peer learning and joint strategizing around transportation, housing, and land use challenges. We will then host additional workshops for our partner communities throughout the project, likely every 4 months or so, to provide project updates and ongoing peer-to-peer learning opportunities. We will take detailed notes and collect additional data for this study during these workshops, which will be written up in a research memo. These workshops will be hosted and facilitated by Dr. Rumore with support from Dr. Stoker and involved students.

**Task 5: Map commuter-sheds for case study communities (November—December 2021):** We will analyze and map the commuter-shed of each of our case study communities using the LODES data approach described above. As also described above, we will vet and discuss these maps with case study community partners. Maps for each community will be made publicly available. We will use what we learn through this project to produce tools that other communities can use to understand and visualize their commuter-sheds; we will share these tools via the GNAR Initiative toolkit. Dr. Stoker will lead this effort with support from the graduate research assistant under his supervision.

**Task 6: Develop guidelines for and pilot case studies via the GNAR Lab (October 2021—January 2022):** This summer, Dr. Rumore is launching a “GNAR Lab” to bring together faculty and students from the University of Utah, University of Arizona, and other institutions around the country who are interested in studying planning and transportation issues in western gateway communities. Four graduate students from the University of Utah, Montana State University, and Harvard University have already expressed an interest in joining the lab to work on GNAR Initiative research with Dr. Rumore and Dr. Stoker; some of these students are currently working on Task 1. These students will work with Dr. Rumore, Dr. Stoker, and other interested faculty and student partners, including our partners at Community Builders, to develop guidelines for and pilot the case study approach for this study during fall 2021. Dr. Rumore and Dr. Stoker will work with GNAR Lab students to develop the semi-structured interview protocol and other case study methodology guidelines. The students will collect and analyze data for the first round of case studies, with support from Dr. Rumore and Dr. Stoker. Under the supervision of Dr. Rumore and Dr. Stoker, and with support from partners at Community Builders, these students will also develop a template for written case studies. Each of these four students will complete at least one case study as part of this project, which will also fulfill their thesis requirements at their respective institutions.

**Task 7: Conduct Gateway Community Housing and Transportation Workshop Course (January—May 2022)**: In spring 2022, Dr. Rumore will teach an applied, for-credit workshop class for graduate students at the University of Utah that are interested in planning and transportation issues in gateway communities. The for-credit course will start by providing students with a background in interconnected transportation, housing, and land use issues in western gateway communities, which will draw heavily on our prior NITC-funded work, the findings of the survey we will conduct in Task 2, and the GNAR Initiative’s ongoing engagement with gateway communities across the West and nationally. Dr. Rumore will train students in the class on how to conduct case studies. Students will then conduct a case study for their course completion requirements, with oversight from Dr. Rumore and assistance from GNAR Lab students and faculty. We anticipate engaging 6-12 graduate students via this spring course. Students will work on case studies in small teams. We have budgeted a travel stipend of $500 per case study to help students travel to their case study sites; we anticipate being able to leverage additional travel funds from university sources and external partners, if needed. All primary and secondary data students collect will be stored according to our data management plan. If there is student interest in and capacity to conduct additional case studies for this project, either as part of the workshop class or for their thesis requirement, we will add communities to our case study sample.

**Task 8: Finalize case studies: (May 2022—August 2022):** Having worked with dozens of students and overseen numerous student projects, Dr. Rumore and Dr. Stoker anticipate that the case studies produced through the workshop course will require additional work prior to being finalized. Dr. Rumore and Dr. Stoker will work with research assistants under their supervision and partners at Community Builders to polish and finalize any case studies that need additional work following completion of the workshop class.

**Task 9: Observe and collect additional data through the GNAR Initiative (continual effort):** Dr. Rumore is the founder and a Co-Director of the GNAR Initiative, which is housed by the Institute of Outdoor Recreation at Utah State University. The GNAR Initiative provides an ongoing opportunity to collect observational data. The GNAR Initiative is currently completing a webinar series on housing challenges and strategies in gateway communities; in fall 2020, the Initiative hosted a webinar series on amenity migration. These interactive webinars, which have engaged hundreds of people from communities (including many urban areas) across the West and nationally, have allowed us to collect some observational data on what is going on in gateway communities across the West in terms of growth and development following COVID-19. We anticipate continuing to host interactive webinars and peer-to-peer learning workshops via the GNAR Initiative and to use these opportunities to gather data on what is going on in communities across the West and share the findings and tools from this study. Dr. Rumore and the other GNAR Initiative Co-Directors will organize these events with support from the GNAR Initiative Coordinator. We will engage students involved in this project in organizing GNAR Initiative events and collecting and analyzing observational data, which will be coded and analyzed using ATLAS.it software.

**Task 10: Analyze data across sites and sources and write up findings (July 2022—November 2022**): Building on the analysis of our survey results and individual case studies, we will analyze findings across all our data sources to generate generalizable results, lessons learned, and policy and planning recommendations. This analysis will be led by Dr. Rumore and Dr. Stoker, with support from students and project partners. We will writeup the results from our cross-site analysis in academic articles, a series of white papers/briefs, and blogs that will be shared via the GNAR Initiative website.

**Task 11: Dissemination, outreach, and education, and reporting (continual effort**): The project team will engage in outreach, education, and dissemination efforts throughout the project period. Dr. Rumore and Dr. Stoker will lead dissemination, outreach, and education efforts, with significant support from students and GNAR Initiative partners. Outreach, education, and dissemination activities will include:

1. Preparation and submission of NITC reports, according to NITC reporting requirements.
2. Preparation and publication of peer-reviewed academic articles reporting on project findings, especially during the second half of the project. Interested students will be involved as co-authors.
3. Preparation and dissemination of white papers/briefs on topics related to housing, transportation, and land use in gateway communities and regions. These will be targeted toward planners, elected officials, state and federal policymakers, transportation and housing agencies, NGOs, consultants, and other professionals and organizations working in or with gateway communities.
4. Sharing of information regarding the project and our findings through the GNAR Initiative website, blogs, social media, newspaper articles and op-eds, and other electronic and print media, as well as through GNAR Initiative webinars.
5. Presentations about the project and our research findings at the annual conferences of the Association of Collegiate Schools of Planning, American Planning Association, Transportation Research Board, and Mountain and Resort Town Planners Summit, as well as via other in-person and virtual opportunities that arise.
6. Sharing our findings and lessons learned via a NITC webinar and/or at the Transportation and Communities Summit.

We also anticipate pairing the results of this study with the results of our 2018 study to write a book on planning and development challenges in western gateway communities and how amenity migration is changing the rural West.

# TECHNOLOGY TRANSFER

***8a.*** *What level will this project reach on NITC’s Technical Readiness Level scale (included in the RFP)? Provide justification.*

Based on our understanding of the TRL provided in the RFP, we believe this project is somewhere in the 4-5 range, since it is focused on further understanding a phenomenon we have documented through prior research and translating research into concrete local, regional, and national planning, policy, and investment recommendations.

***8b.*** *Who are the intended users of this research? Select all that apply.*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | Practitioner |  | X | Policy Maker |  | X | Researcher/Academic |  | X | Engineer/Designer |
|  |  |  |  |  |  |  |  |  |  |  |
| X | Operations |  | X | Planner |  | X | Other: general public; local and regional public officials |

*Please describe how these users will use the final products of your research*.

We anticipate the lessons learned, guidance and tools developed through this study will have relevance for practitioners, policymakers, researchers, engineers/designers, people who do operations, and others working on transportation, housing, and planning-related concerns in and around gateway communities as well as in other urban and rural regions. For example, we suspect the results of this study will highlight the urgency of addressing housing, transportation, and land use issues in gateway communities in an integrated, regional way and emphasize the need for cross-sector regional collaboration around these issues. Such findings would have implications for a wide range of entities, from state DOTs to federal agencies to local public officials. This study will also generate a range of academic questions and insights related to integrated housing, transportation, and land use challenges and opportunities. Further, we anticipate the analysis of LODES data and visualization of commuter-sheds will be of interest for local and regional transportation engineers and planners (see Figure 1). We will describe and detail how to produce this analysis and anticipate this will support regional transportation planning in these regions.

Figure 1: Commuter-shed for Aspen, CO

Finally, and importantly, we feel strongly that the acute housing, transportation, and land use issues that are playing out across western gateway communities merit far greater attention from state and federal decision-makers (as well as academics). We also know that people who live in, work in, visit, and work with these places are very concerned about the futures of these towns and cities and are eager for strategies and resources and help address their transportation, housing, and land use concerns. By documenting what is happening in these places and telling their stories, we hope to bring attention and resources to bear on their challenges as well as to illuminate lessons learned and strategies.

**8c.** *In addition to the final report, how will you share the findings with them?*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | Brochure |  | X | Infographics |  | X | Project Brief |  | X | Workshop/Training |
|  |  |  |  |  |  |  |  |  |  |  |
| X | Webinar |  |  | Short Video |  | X | Conference(s) |  | X | Other: GNAR Initiative website, blogs, and toolkit |

***8c.*** *Please describe your plans for supporting the dissemination of your research.*

Our plans for disseminating this research are described in-depth above in Section 6 (see Task 11).

# OUTCOMES AND IMPACTS

To date, academics, particularly in the field of planning, have largely ignored the planning context within gateway communities. Indeed, prior to our *Journal of the American Planning Association* article on “Planning and Development Challenges in Western Gateway Communities” (Stoker et al. 2021), there was no commonly accepted term for referring to this type of community, nor measurable criteria for identifying gateway communities. Our prior NITC-funded study documented the fact that many of these rural, small towns are experiencing “big city issues,” such as acute issues associated with housing affordability and attainability, income inequality, cost of living, and transportation congestion. It also revealed the fact that many of these communities, despite being small towns, are doing some very innovative and exciting things to respond to their planning and development challenges and highlighted the possibility that these small towns with big city issues might be valuable laboratories in which to study interconnected housing, transportation, and land use challenges and strategies. Our 2018 NITC-funded study established a foundation for planning and transportation research in these towns and cities and the regions around them; however, in order to do so, it was necessarily very broad and largely focused on documenting problems and challenges. This proposed study will directly build on and add to the results of our 2018 study through digging more deeply into interconnected housing, transportation, and land use challenges in western gateway communities and, importantly, through exploring strategies and potential solutions. In so doing, we anticipate this study will produce recommendations and lessons learned for gateway communities at all stages of development as well as for other urban and rural communities across the country. Our belief that this study will have relevance for communities elsewhere in the country, including urban communities, is bolstered by the fact that many urban and rural communities across the country, as well as in Canada, have participated in our GNAR Initiative webinars on amenity migration, housing, transportation issues and found examples and lessons learned from gateway communities to be helpful for their own regions.

Throughout this study, we will engage heavily with gateway communities and regions throughout the West through our survey, case studies, commuter-shed mapping, peer-to-peer workshops, and GNAR Initiative efforts. The products of this study will include guidance and planning support tools to aid gateway communities and others in preparing for and responding to development pressures. We are also optimistic that we will be able to leverage the results of this study, along with ongoing National Science Foundation-funded research, to build interactive models and planning support tools for gateway communities.

We have structured our research approach to engage and train many students from multiple universities through research assistantships, the GNAR Lab, and classroom education. Our previous NITC-funded research assistants and other students who have participated in GNAR Initiative efforts have gone on to work as planners, community development specialists, and transportation experts in gateway regions such as Driggs, Idaho; Missoula County, Montana; and Grand County, Utah. Gateway communities have told us they are eager to hire staff who understand their unique contexts; we are training students to meet that demand.

Importantly, this study couldn’t be timelier. Over the last year, interconnected housing, transportation, and land use challenges have been rapidly playing out in gateway regions across the West due to COVID-19-related amenity migration and the Zoom Town phenomenon. This has driven a lot of attention to the results of our 2018 NITC-funded study; our Stoker et al. (2021) article has received over 8,000 views since being published online in August 2020 and has been cited in a wide range of media outlets, including international publications such as BBC News, Forbes, and Fast Company. Our proposed study will allow us to track the impacts of COVID-19 on gateway communities throughout the West and develop a longitudinal dataset of planning and development pressures in these places. That, in turn, will improve our understanding of the development trajectories of these communities, increase our ability to support them, and create a wide variety of opportunities for ongoing research.

Finally, we anticipate this work will lead to numerous webinars, conference presentations, invited talks, academic publications, and popular publications, as did our prior NITC-funded study. Through funding this study, NITC has an opportunity to continue to distinguish itself as a leader in the emerging and increasingly important field of gateway community transportation and planning research and practice.

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**Danya Lee Rumore**

**University of Utah**

## **A. Professional Preparation**

Oregon State University Environmental Science & Natural Resources Economics B.S. 2007

University of Auckland, New Zealand Environmental Management & Geography M.Sc. 2010

Massachusetts Institute of Technology Environmental Policy & Planning Ph.D. 2015

## **B. Appointments**

2020-present Adjunct, Institute for Outdoor Recreation and Tourism, Utah State University

2015-present Associate/Assistant Professor (Research), College of Law, University of Utah

2015-present Assistant Professor (Research), City and Metropolitan Planning Department, University of Utah

2015-present Director/Associate Director, Environmental Dispute Resolution Program, University of Utah

2012-2015 Assistant Director, MIT Science Impact Collaborative, Massachusetts Institute of Technology

2013-2015 Associate, Consensus Building Institute

2012-2015 Project Manager and Research Lead, New England Climate Adaptation Project

2009-2010 Research Fellow, New Zealand Centre for Sustainable Cities

2008-2009 Fulbright Fellow to New Zealand, U.S. Department of State

## **C. Products**

# **Related to project:**

1. Stoker, P., D. Rumore, L. Romaniello, and Z. Levine. (2021) Planning and development challenges in western gateway communities. Journal of the American Planning Association, 87(1): 21-33
2. Rumore, D., J. Smith, J. Powell, P. Stoker, L. Romaniello, Z. Miller, B. Adini, I. Hui, C. Flint, and D. Albrecht. (2020) Research-agenda setting paper: gateway communities and the impacts of COVID-19. CONVERGE COVID-19 Working Groups for Public Health and Social Sciences Research, National Science Foundation.
3. Rumore, D., P. Stoker, Z. Levine, and L. Romaniello. (2019). *Planning in gateway and natural amenity region communities: understanding the unique challenges associated with transportation, mobility, and livability.* NITC-RR-1118. Portland, OR: Transportation Research and Education Center (TREC).
4. Rumore, D. and K. Daly. (2016) Situation assessment: planning, land use, and growth in Bonner County, Idaho, *Environmental Dispute Resolution Program Report,* December 2016.
5. Rumore, D. and D. Corbin. (2016) Situation assessment: Western Zion Corridor, *Environmental Dispute Resolution Program Report,* Fall 2016.

**Other significant products:**

1. Zajchowski, C., M. Brownlee, M. Blacketer, J. Rose, D. Rumore, J. Watson, and D. Dustin (2019). “Can you take me higher?”: normative thresholds for air quality in the Salt Lake City Metropolitan Area. *Journal of Leisure Research, 50(2):* 157-180.
2. Rumore, D., T. Schenk, and L. Susskind (2016) Role-play simulations for climate change adaptation education and engagement, *Nature Climate Change* (6): 745-750.
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5. Susskind, L. and D. Rumore (2015) Using devising seminars to advance collaborative problem solving in complicated public policy disputes, *Negotiation Journal,* 31(3): 223-235.

#### **D. Synergistic Activities**

### *GNAR Initiative:* Rumore is the Founder and a Co-Director of the Gateway and Natural Amenity Region (GNAR) Initiative, which coordinates research, education, and technical assistance to help western GNAR communities preserve the qualities that make them special and thrive amid change. The GNAR Initiative hosts the GNAR Network, a peer-to-peer learning forum that Rumore facilitates. The GNAR Initiative has leveraged over $100K in funds from academic, non-profit, and federal sources since it officially started in spring 2020.

1. *GNAR Compass—A Tourism Decision Support System for Western Gateway and Natural Amenity Region Communities*: Dr. Rumore is key personnel on a community-engaged National Science Foundation-funded project ($50K budget) that is developing a tourism decision-support tool to help tourism-dependent communities prepare for and be resilient to external shocks.
2. *Gateway Communities and COVID-19:* Rumore was the PI for a National Science Foundation-funded Working Group that developed a research agenda to study gateway communities' responses to COVID-19 and what can be learned from their experiences for community vulnerability and resilience.
3. *Planning in Gateway and Amenity Communities: Understanding Unique Challenges Associated with Transportation, Mobility, and Access to Opportunity:* Rumore was the PI on a NITC-funded research project ($200K budget) that documented the unique planning and transportation challenges in gateway and natural amenity regions throughout the West.
4. *Tools and Techniques for Teaching Collaborative Regional Planning to Enhance Livability and Sustainable Transportation:* Rumore was the PI on a NITC-funded curricula development project ($80K budget) that developed and disseminated tools and techniques for teaching collaborative regional planning to enhance livability and sustainable transportation in gateway and amenity communities. The project produced academic instruction tools, as well as tools and resources for practitioners and community members.

**Philip Stoker**

**University of Arizona**

**A. Professional Preparation**

University of Redlands, Redlands, CA Environmental Management B.S. 2008

Simon Fraser University Vancouver, BC Resource Management M.R.M. 2011

University of Utah Salt Lake City City and Metropolitan Planning Ph.D. 2015

**B.** **Appointments**

2015-2016 University of Arizona Postdoctoral Research Associate

2016-present University of Arizona Assistant Professor of Landscape Architecture and Planning

**C. Products**

**Related to project:**

1. Stoker, P., D. Rumore, L. Romaniello, and Z. Levine. (2021). Planning and development challenges in western gateway communities. *Journal of the American Planning Association*, 87(1): 21-33
2. Rumore, D., J. Smith, J. Powell, P. Stoker, L. Romaniello, Z. Miller, B. Adini, I. Hui, C. Flint, and D. Albrecht. (2020). *Research-agenda setting paper: gateway communities and the impacts of COVID-19*. CONVERGE COVID-19 Working Groups for Public Health and Social Sciences Research, National Science Foundation.
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4. Hamidi, S., Stoker, P. (2016). *Pedestrian and Transit Oriented Design Course*. NITC final report.
5. Stoker, P., Adkins, A., Ewing, R. (2016). Walking Safety and Health. In *Walking: Connecting Sustainable Transport with Health*. Emerald Books. In Press.

**Other significant products:**

1. Stoker, P.,Chang, H., Wentz, E., Crow-Miller, B., Jehle, G., Bonnette, M. (2019). Building water-efficient cities: A comparative analysis of how the built environment influences water use in four wester US cities. *Journal of the American Planning Association*. 1-14.
2. Zuniga-Teran, A., Stoker, P, Gimblett, R., Orr, BJ., Marsh, S., Guertin, P. (2019). Exploring the influence of neighborhood walkability on the frequency of use of greenspace. *Landscape and Urban Planning* 190.
3. Nelson, A., Stoker, P, Hibberd, R. (2018). Light Rail Transit and Economic Recovery. A Case of Resilience or Transformation? *Research in Transportation Economics*.
4. Stoker, P., Hinners, S., Jackson-Smith, D., Levine, Z. (2019). Neighborhood Effects on Urban Water Use. *Sustainable Water Resources Management*.
5. Chang, H., Bonnette, M., Stoker, P., Crow-Miller, B., Wentz, E. (2017). Determinants of Single Family Residential Water Use Across Scales in Four Western US Cities. *Science of the Total Environment*.

**D. Synergistic Activities**

1. *Gateway Communities and COVID-19:* Stoker was part of a National Science Foundation-funded Working Group that developed a research agenda to study gateway communities' responses to COVID-19 and what can be learned from their experiences for community vulnerability and resilience.
2. *Planning in Gateway and Amenity Communities: Understanding Unique Challenges Associated with Transportation, Mobility, and Access to Opportunity:* Stoker was a Co-PI on a NITC-funded research project ($200K budget) that documented the unique planning and transportation challenges in gateway and natural amenity regions throughout the West.
3. *GNAR Research Network:* Stoker is a lead faculty in the GNAR Initiative’s GNAR Research Network. He also trains and mentors students who are involved in the network.
4. *Transit-Oriented Design Course:* Stoker developed a course on pedestrian and transit-oriented design that funded students to travel to destinations across the U.S. to measure and evaluate land use and design strategies.
5. *ET+ Scenario Planning:* Stoker contributed to the development of ET+, an open-source free software program designed to assist communities with scenario planning.