

Tyler Wardell

6 December 2019

Joey Iuliano

Complete Streets Critique

Table of Contents

Introduction	3
Literary Review	5
Design Guidelines	5
Complete Streets Ordinances	5
Methodology.....	6
Data- comparing and contrasting the ordinances.....	7
Section 1 VISION, INTENT, AND GUIDING PRINCIPLES	8
Section 2 COMMITMENT IN ALL PROJECTS AND PHASES.....	9
Section 3 EQUITY	10
Section 4 CLEAR, ACCOUNTABLE EXCEPTIONS.....	10
Section 5 JURISDICTION	12
Section 6 DESIGN.....	12
Section 7 LAND USE AND CONTEXT SENSITIVITY	13
Section 8 PERFORMANCE MEASUREMENT, REPORTING, AND ACCOUNTABILITY.....	14
Section 9 PROJECT SELECTION CRITERIA	15
Section 10 IMPLEMENTATION STEPS	16
Data, Results, and Discussion Section.....	17
Conclusion.....	25
Limits to the Study	25
Recommendations for Future Resurch.....	26
References	27

Introduction

People have been traveling for thousands of years in an attempt to improve their lives by some means. “For many centuries individual movement and trade relied on walking, packhorses, and horse-drawn carts and wagons” (Black, 2003). The facilities for these modes were placed along the natural pathways people used to get around. Black (2003) explains, “The first major roads to be built in Europe are attributable to the Roman Empire...among their many and varied skills was a talent for road building... Their roads were built in response to a potential need to move armies quickly from one place to another, and they were built to last forever.” Roads have changed over the centuries since the time of the Romans. Modern materials have replaced cobblestone, and new transportation options have complicated roads. However, the underlying goal is still the same: to move people, goods, and services from A to B.

More often than not, we see roads built for moving cars while other transportation options such as walking, cycling, or using transit are often an afterthought. While Tucson roads provide options, they are not necessarily safe or comfortable ones. Sidewalks in Tucson are infrequent outside of the urban core and often without shade. Bike lanes tend to be narrow and unprotected. Transit stops are unshaded and service has a long headway, leaving people to wait in the hot sun. All of which leads to uncomfortable walking conditions, the potential for automotive bike accidents, and heat stroke from sun exposure.

It does not have to be this way; roads can be friendly to all modes of transportation with better design and planning. Adding trees along the street can provide shade over sidewalks. Buffers and barriers on bicycle lanes help keep drivers and cyclists separate. Shaded transit stops, and more frequent service creates a more pleasant experience for users. There are so many options that it can be difficult to pick the right ones for any given situation.

Up until recently, policies in place that dictated how to design roads for all users were limited to The American Association of State Highway Transportation Officials (AASHTO) design standards and the Manual of Uniform Traffic Control Devices (MUTCD). The design standards have favored drivers over alternative transportation. However, more cities have started to adopt complete streets policies. These policies often follow designs from NACTO- National Association of City Transportation Officials- which favor a blend of options for all users.

In Spring 2019, Tucson passed its Complete Streets Initiative, which put into place new guidelines for building and designing our roads. At the same time, the passing of Prop 407- Parks and Connectivity Bond- provided funding to implement complete street designs. While many roads will not see an upgrade until they are repaved, the city now has a policy in place to elevate non-personal vehicle modes. However, is this a policy that works- will it improve our transportation options and create a more vibrant built environment- or is it one that will gather dust on a shelf?

This study sets out to critique and compare Tucson's Complete Streets Initiative to other examples, one in the Southwest and one in the Northwest to compare a similar climate and a differing one. Our plan will be compared against Albuquerque, New Mexico and Haliey, Idaho in categories such as enforceability, design standards, and transportation options. The strengths from those plans will be identified and then used to propose ways to improve Tucson's policy.

Literary Review

Design Guidelines

The Design Guidelines of most road systems in the United States has been the American Association of State Highway and Transportation Officials also known as AASHTO (Resources and Guidelines). Its guidelines, or rather the Green Book, have been used to try and create more sustainable streets (Supremacy on Bike/Ped Safety Standards). However, AASHTO contains very old guidelines for street and road reform. Its first addition of the Bike guide came out in 1974 and, while this helped to introduce bike lanes to America, it failed to make them safe (Schultheiss). Due to this lack of safety, The Department of Transportation have been allowed to implement new rules for road construction (Supremacy on Bike/Ped Safety Standards). This is when The National Association of City Transport Officials, also known as NACTO, came in and designed a safer means of road construction and use for the general public (Supremacy on Bike/Ped Safety Standards). Rather than focusing on the addition of lanes, It focused on several factors that contributed to safety on the road such as creating a public, useable space and a healthy separation between traffic of varying types (Ink).

Complete Streets Ordinances

The Complete Streets Movement started in 2003 and has been dedicated to making street use more available to all users since (Complete Streets Come of Age). The movement was started by Barbara McCann, a biking enthusiast who wanted to see more done about the safety of all people on the road, and she has contributed to much of the success of the program (Benfield 2013). As was Barbara's goal, A Complete Streets program is meant to be for all people. This means that the design of an universal street, intended for multiple type of traffic, is not catering to one type. The adoption of the program shows a commitment to this ideal (National Complete

Streets Coalition 2020). This movement has been growing fast as the American populous grows tired of not having transportation options in their cities. In 2012, around 130 communities adopted the program for the future of their road design (Complete Streets Policies Surge in Popularity).

Complete Streets Critique

One of the major issues with breaking down and critiquing the Complete Streets Program is that much of the cities that participate do so in nonbinding agreements (How to Write a Complete Streets Policy). This means that at any time they could choose to avoid implementation of new types of road construction (How to Write a Complete Streets Policy). On the other hand, some cities have gone overboard and have implemented the Complete Streets Executive Orders to facilitate change (How to Write a Complete Streets Policy). However, this is why the focus for critique is on cities that have developed Ordinances or Legislation for it shows a willing participation from most members of government to come together and solve this problem (streetsblog.org). The Complete Street Policy can have a wide array of different aspects that could make it sustainable, which is why it is important to break them down separately in order to see the major differences (Sustainable Complete Streets).

Methodology

The Complete Streets Ordinance is a rather new government legislation that dictates the sustainable design of current and future road systems (Complete Streets Tucson). However, could it be doing more, should it be doing more, and what enforcement measures are in place to influence construction? Understanding whether or not this legislation has these qualities will be important for determining its effectiveness and relevance as well as its influence on how Tucson city planning will conduct road construction in the future.

In order to assess Tucson's Complete Streets policy, it will need to be compared against similar existing ordinances in other cities. Case studies are an effective means of pulling together information because they allow for a comparison of data from different perspectives (Baxter 2015). Hence, case studies will be used to reference effective strategies from The National Complete Streets Coalition. Case studies are required in order to make real world comparisons between what is considered sustainable and road planning and what is unsustainable.

Tucson's Complete Streets policy will be compared against Hailey, Idaho and Albuquerque, New Mexico, both of which have had a complete streets policy for some time and have reconstructed roads under it. This case study will look at the policies and determine the differences between them as well as where these policies are lacking. It is important to understand how the policies were designed, what enforcement they have, and what streets have to follow it. After the completion of the case study, a point system inspired by Amanda Maass called a Quality Plan Rubric (Maass 2016) will be used to score different aspects of each of the ordinances to compare them and determine where they excel and where they need work.

Data- comparing and contrasting the ordinances

The Complete Streets Ordinance is a set of legislative actions to attempt to plan and design new streets and old streets around a strong, sustainable framework (Complete Streets Tucson 2019). It is "an approach to transportation planning and design that guides the development of a safe, connected, and equitable transportation network for everyone - regardless of who they are, where they live, or how they get around. Adopting a Complete Streets policy, formalizes a city's intent to consistently fund, plan, design, construct and operate an interconnected street network for all anticipated users and transportation modes" (Complete Streets Tucson 2019).

However, it is not just about moving people in a more effective way, it is about saving lives as well; around 4,000 people are injured and 50 people die every year from traveling (Complete Streets Tucson 2019). The substance of the Complete Streets Ordinance comes from a multi-year government-run study to determine the issues of streets in Tucson called the Complete Streets Resolution back in 2015 (Ordinance NO. 11621). Once this was done, the Office of the Mayor ordered policy to be created that would influence changes for the City of Tucson streets (Ordinance NO. 11621). Once this policy was created, the Mayor and Council would adopt it as what is now known as the Complete Streets Ordinance (Ordinance NO. 11621). The policy behind the Complete Streets Ordinance for Tucson comes with 10 sections on how streets will be evaluated (Complete Streets Tucson 2019).

Section 1 VISION, INTENT, AND GUIDING PRINCIPLES

The first section seeks to improve mobility on a street and options in transport while also providing a sustainable focus on other underlining issues, like storm water management, walkability, tree cover, the use of art, and so much more (Complete Streets Policy 2019). It focuses heavily on six core guiding principles:

1. **SAFETY:** Complete Streets provide a safe travel experience to all and designing Complete Streets is a safety strategy to eliminate preventable traffic fatalities.
2. **ACCESSIBILITY:** Complete Streets serve people of all ages and abilities.
3. **EQUITY, DIVERSITY, AND INCLUSIVITY:** Complete Streets elements are implemented equitably and inclusively throughout the city.
4. **LAND USE:** Complete Streets incorporate context sensitive, flexible design approaches and consider the surrounding community's current and expected land use and transportation needs in an interconnected manner.

5. ENVIRONMENT AND HEALTH: Complete Streets supports the health and wellbeing of Tucson's residents and environment by enhancing sustainable transportation options, providing opportunities for physical activity through active transportation (such as walking and biking), improving air quality through reduced vehicle emissions, mitigating urban heat island effect, utilizing storm water runoff, decreasing storm water pollutants, and maximizing shade trees and vegetation.

6. ECONOMIC VITALITY: Complete Streets helps spur economic development by supporting business and job creation and fostering a more resilient workforce that has greater access to employment opportunities through improved travel options.

(Complete Streets Tucson 2019).

When looking at the Complete Streets Ordinance of Hailey, Idaho, the intent for their ordinance was to improve the pedestrian and bicycle infrastructure standards, engage the public in these projects and create the design, as well as approve and review standards for each of these projects (Complete Streets Hailey 2019). Also in Albuquerque, their intent is clearly outlined within section 1. It dictates that as a city that is striving to be a Vision Zero city, a city without traffic-related fatalities and injuries, new street systems have to be put in place because of the cities lack of planning. Previously, for most of its current road infrastructure, it only encompasses personal automobile usage (Complete Streets Albuquerque 2019).

Section 2 COMMITMENT IN ALL PROJECTS AND PHASES

Section two focuses on the desire to influence all aspect of the decision making process while improving on construction and repair strategies that will allow for more inclusivity in the form of access around these sites, minimizing traffic disruptions around these areas (Complete Streets Hailey 2019). In the city of Hailey's case, the focus is on the community projects where reform is needed, and the Commitment to these projects goes as far as including them in their

Transportation Master Plan (Complete Streets Hailey 2019). Albuquerque makes it clear that their goal with any project is to create multiple levels of transportation services and that the ordinance commits the cities resources to working with different projects to avoid consequences related to road construction and the surrounding community (Complete Streets Albuquerque 2019).

Section 3 EQUITY

Section three dictates that equity is a main course of concern because the most disenfranchised groups have the most to gain from this system. They are the most affected by the inability to use and/or conform to the transit system as it currently stands (Complete Streets Tucson 2019). Hailey looks to the community as a whole, due to their population size being around 8,000 people, which gives them an advantage as they expand (Complete Streets Hailey 2019). In Albuquerque, both low and moderate-income members of society are taken into account because they are the greater population of Albuquerque and have the most to gain from a system like a Complete Streets Ordinance (Complete Streets Albuquerque 2019).

Section 4 CLEAR, ACCOUNTABLE EXCEPTIONS

Section four allows for “Clear, Accountable Exceptions” to the Policy based on seven circumstances;

- “1. Accommodation is not necessary on roadways where specific users are prohibited, such as bicycles on interstate freeways.
2. The cost of accommodating the needs of a particular user group for the transportation project would be disproportionately high relative to the current or future need or probable use of the facilities by the particular user group. This determination should be made with due consideration to future users, latent demand, and the social and economic value of providing a safer and more convenient transportation system for all users.

3. There is a documented absence of current and future need.
4. Funding source is restricted in terms of how it can be used.
5. Project is in final design or construction as of the effective date of this Policy.
6. Project involves emergency repairs that require immediate, rapid response (such as a water main leak). Temporary accommodations for all modes shall still be made whenever feasible. Depending on severity and/or length of time required to complete the repairs, opportunities to improve multimodal access shall still be considered where possible as funding allows.
7. Project involves routine maintenance that does not change the roadway geometry or operations, such as mowing, sweeping, or spot repair” (Complete Streets Tucson 2019).

When it comes to Hailey, Idaho, the exceptions are exempt from participating, and they are as follows (Complete Streets Hailey 2019): Any design that requires regular and routine maintenance to function which includes “mowing, Cleaning, sweeping, chip sealing, fog coating, or spot repairs” as well, emergency infrastructure that is meant to protect people in the case of imminent demise are also exempted (Complete Streets Hailey 2019). Construction and reconstruction projects are exempt in the case that they are funded by the federal or state government which may have different codes for construction (Complete Streets Hailey 2019). However, they can use their codes if they are better than the federal or state standard or if they are more likely to benefit their people (Complete Streets Hailey 2019). Projects in Albuquerque are exempt if they are:

“a. Existing adopted ordinances and policies affecting the street preclude a certain use (e.g. non-motorized vehicles).

- b. The project is a routine maintenance activity that does not involve resurfacing, restriping or reconfiguring the street. Examples of exempt projects include patching, sidewalk repair or cleaning.
- c. The project is limited by available publicly owned right-of-way.
- d. The project is located on state or federal right-of-way, the City has made an effort to obtain permission for certain features compliant with the ... New ... Deletion 10 provisions of §6-5-6, and the agency with control of the right of way has indicated they will not permit requested features.” (Complete Streets Albuquerque 2019).

Section 5 JURISDICTION

Section five recognizes that while the city may have influence over some areas; they do not have influence over the whole of the Tucson region, which may require that they impose on other organizations for working on some streets (Complete Streets Tucson 2019). If this happens, the ordinance will work with other organizations to ensure compliance as well as ensure that private contractors abide by these rules (Complete Streets Tucson 2019). Due to Hailey, Idaho being a small town, jurisdiction may have been an afterthought because no information would indicate a concern for it (Complete Streets Hailey 2019). Albuquerque, on the other hand, seems only to be concerned about its jurisdiction and does not refer to working with a county (Complete Streets Albuquerque 2019).

Section 6 DESIGN

Section six explains that design standards will be of the best quality and taken from them the standards of organizations like The National Association of City Transportation Officials, The Institute of Transportation Engineers, United States Access Board, ADA Accessibility Guidelines, and others (Complete Streets Tucson 2019). This is where Hailey differs tremendously for not only have they put forward their design standards, they have also designed,

broken down street plans and their inner workings with walkability, bicycling, and mass transit all in mind (Complete Streets Hailey 2019). Albuquerque talks about a system of multi-module design that incorporates the understanding that people need multiple types of transportation methods in the country and without access to them, they are less likely to succeed (Complete Streets Albuquerque 2019). Thus, Albuquerque focuses on the access to different means of transportation through walking, biking and even mass transit systems to help improve the lives of its people (Complete Streets Albuquerque 2019).

Section 7 LAND USE AND CONTEXT SENSITIVITY

Section seven will work with the “Land Use and Context Sensitivity” of each project for “The Complete Streets approach is not a one-size-fits-all solution and does not mean that every street will have exactly the same elements to accommodate all modes of transportation in the same manner” (Complete Streets Tucson 2019). In order to do this, the policy dictates that;

- “1. The City shall continue to support coordination between its Transportation and Planning and Development Services departments to identify opportunities to integrate land use and transportation in plans, policies, and practices.
2. The City shall review and, in coordination with our development community, revise land use policies, plans, zoning ordinances, and/or other relevant documents and procedures to incorporate the vision of the Complete Streets Policy. This could include the City’s General & Sustainability Plan, Unified Development Code, and Major Streets and Routes Plan. After a comprehensive review of existing documents, a timeline shall be established for the revisions to be completed.
3. In revising existing, or developing new, transportation plans and/or design guidelines, the City shall specify how transportation projects will serve current and future land uses and shall consider developing new street typologies that take into account the adjacent

land uses, densities, context, and local character of the surrounding neighborhoods, as well as natural environments and hydrological characteristics for integration of green storm water infrastructure,

4. In certain instances, significant public investment in transportation infrastructure can trigger an increase in land values and housing costs. In the planning phases of large-scale transportation projects, the City shall ensure collaboration between its Transportation, Planning and Development Services, and Housing and Community Development departments to thoroughly consider measures to preserve housing affordability and increase new affordable housing options in order to help meet community needs and mitigate unintended consequences such as involuntary displacement tied to gentrification” (Complete Streets Tucson 2019).

On the other hand, the city of Hailey, Idaho seems to have built out a system of usable design ideas that serve to limit what can be done to a road system, who can design it, and who can implement them (Complete Streets Hailey 2019). They even have accommodations for the event that the road system needs something specific and regulations on the types of materials used (Complete Streets Hailey 2019). In Albuquerque’s case, land use is strictly regulated around their principals for their complete streets ordinance, and it must be strictly for the benefit of the people, corridor, neighborhood, and economic growth of the city (Complete Streets Albuquerque 2019).

Section 8 PERFORMANCE MEASUREMENT, REPORTING, AND ACCOUNTABILITY

Section eight is committed to “Performance Measurement, Reporting, and Accountability” for planning a street and implementing it may not always yield the exact desired results so its important to review what was done and use that as a basis for understanding how to improve the complete streets formula and be able to implement it effectively into all street

planning and design (Complete Streets Tucson 2019). Hailey, on the other hand, has this system as strict laws that dictate the use of materials and design strategies used, all of which are overseen by the city and pre-agreed upon before construction starts (Complete Streets Hailey 2019). Albuquerque, New Mexico's government states that the city will use its power to enforce the policy of conducting performance measures as well as evaluations of streets over 9 months to ensure best practices are used for their creation.

Section 9 PROJECT SELECTION CRITERIA

Section nine sheds light on the "Project Selection Criteria" because funding has to be spent wisely and sparingly as to make this an affordable process (Complete Streets Tucson 2019). Plans that were in the works before the ordinance implementation will be adopted into the program and different tools will be used to determine a project's need for construction or reconstruction (Complete Streets Tucson 2019). Mainly this will prioritize streets that would receive the most traffic by low-cost methods, such as walking or biking, as well as low-income neighborhoods (Complete Streets Tucson 2019). In Hailey, they have an administrator, which dictates the projects they will take on and slightly modify proposals (Complete Streets Hailey 2019). They have public hearings, and if approved, then the construction process begins, and the city oversees every detail (Complete Streets Hailey 2019). In Albuquerque, the main criteria for selection are more about the urgency of the need for the road to be reconstructed or built (Complete Streets Albuquerque 2019). For example, their ordinance dictates that "Any departments pursuing projects that alter or otherwise affect streets shall work collaboratively on an annual basis to identify and include prioritization of projects in communities with low-to-moderate income, high populations of elderly citizens, high populations of citizens with disabilities. The City shall develop a process of data collection and analysis for such prioritization and documentation" so their criteria are any road that needed to be redesigned or

designed to follow the guild lines of a complete street, but some roads will have more urgency for completion (Complete Streets Albuquerque 2019).

Section 10 IMPLEMENTATION STEPS

Finally, section ten looks into the “Implementation Steps” of the policy on any given project, which requires a technical review by a committee (Complete Streets Tucson 2019). This committee will contain the following;

“Transportation Director (Chair of the Committee), Transit System General Manager, Director of Planning and Development Services, Director of Parks and Recreation, A City Manager’s Office representative, Housing and Community Development Director, Tucson Fire Department Chief, Tucson Police Department Chief, Director of the Environmental and General Services Department, A representative from the Complete Streets Coordinating Council, External issue area experts, such as representatives from academic institutions, other public entities, advocacy groups, community organizations, or local and national planning and transportation organizations, as needed” (Complete Streets Tucson 2019).

This committee would ensure that any project that is going through this process is subject to the following rules: they follow best practices to make collaborative decisions, include representation from key groups, that accountability is upheld in the implementation process, they empower the community to participate in decision making, the whole process is modeled after the Complete Streets Task Force to foster a collaborative effort between City staff and external stakeholders, and it is facilitated by neutral, professional facilitators (Complete Streets Tucson 2019). Hailey, Idaho has a five-step program for its means of implementation (Complete Streets Hailey 2019). The first revolves around the use of an application process that focuses on weeding out the projects that are not to design standards (Complete Streets Hailey 2019). Then, once a

project makes it past the application process, it is reviewed by a public hearing to determine its effective use and the type of project it is (Complete Streets Hailey 2019). Once a project makes it past this process, it goes to the pre-award of Contract phase where the person or people who brought this project forward will be recognized for their actions (Complete Streets Hailey 2019). Then preconstruction starts, and this makes sure that all plans are done, and there is a meeting with the Administrator to determine that all plans are complete (Complete Streets Hailey 2019). Finally, construction starts and is overseen by the city in all aspects of it (Complete Streets Hailey 2019). When it comes to Albuquerque, there is a two-step implementation plan which states that

1. The Administration shall work with City Council to develop a process for implementation, performance measures, evolution, and staff training for implementation of the Complete Streets policy.
 2. Within nine months of the adoption of this Complete Streets Ordinance, the Administration shall present the process to the City Council.
- (Complete Streets Albuquerque 2019).

Data, Results, and Discussion Section

In order to assess the plans, a rubric was constructed to grade the three complete street policies on facts- focusing on climate change and impacts; goals- such as safety and equity; policies- such as sidewalks, bicycle facilities, shade trees; and implementation- such as a roadmap on who and how the plan will work. The scoring system is similar to the one used by Amanda Maass (Maass 2016) on the evaluation of stormwater management plans; however, a simple 0 or 1 score was used instead of a scale. Below is a summary of the areas across all three cities as well as a scorecard for each plan.

Fact Based Elements			
Fact-based	Tucson	ABQ	Hailey
Climate Change Anthropogenic	0	0	0
Climate Change as an issue	0	0	0
Congestion/traffic	1	1	1
Urban heat island	1	0	0
Flooding	1	0	1

Elements All Cities had in Common

To begin with, only one of the fact-based aspects showed mutual support and that was looking into congestion/traffic. It makes sense that a street policy would be aimed at improving congestion. However, it is important to realize that it should not be the only aspect involved with developing a sustainable street system.

Elements Two Cities had in Common

Two of the cities, also, focused on flooding issues and how to plan for such events. For Tucson, this makes sense as urban flooding is already a concern and will continue to be with future climate change impacts.

Elements Unique to Tucson

Only one city, Tucson, focused on the urban heat island (UHI) effect as a possible issue. This is concerning because of the impact that the UHI effect has on making cities less walkable and livable due to increased temperatures. Other locations, too, need to consider the impact that streets and parking lots have on contributing to the UHI effect and how complete streets can help mitigate it.

Elements None of the Cities had

None of the cities had concerns raised in their street plan about climate change. This raises concerns because, while infrastructure can be built around roads that improve the safety

and wellbeing of the users, it should also be built to address climate change. If not, then some of the new road construction strategies may become out dated as climate change continues.

Goals for the Orinance			
Goals	Tucson	ABQ	Hailey
Safety-General	1	1	1
Safety- specific	1	1	1
Accessibility- general	1	1	1
Accessibility- Specific	1	1	1
Equity- general	1	1	0
Equity- specific	1	0	0
Land use- general	1	1	1
Land use- specific	1	1	0
Environment and Health-general	1	1	1
Environment and Health- specific	1	1	1
Economic vitality-general	1	1	1
Economic vitality-specific	1	1	1

Elements All Cities had in Common

All cities studied agreed with goals involving Safety, Accessibility, Economic vitality, Environment and Health, and General Land use. As far as safety is concerned, if it was not a goal then the public may be less inclined to get behind the policy. Accessibility, for all modes, is one of the main focuses for complete streets and thus should be one of the defining fetures of all policies. Economic vitality is likely more for the increasing economic diversity in areas with complete streets. Environment and Health is important to consider because complete streets should have a positive impact on the environment and the health of citizens. Finally, there is Geneal Land Use which could be influenced by the changes in how roads would function and the way they would be integrated into society. For example, changes to the land use could encourage more mixed use development, which helps support more transit and walking. Increasing Safety

and accessibility is beneficial to the overall use of the roads while economic vitality ensures that it is built without bankrupting the city. Lastly, environment and health are important for ensuring that the construction of these roads does not inhibit environmental health.

Elements Two Cities had in Common

Two cities, both Albuquerque and Tucson, expressed elements for both specific land use and general equity. Being more specific with the type of land use policies is possibly a good and a bad decision. The more specific a plan is the more it has to spend implementing strategies that may not improve a situation. However, the less specific means that while there is more room for development, there is no requirements to make changes to the current system. Also having a general goal to look at equity is great for cities with widely diversified populations. This could be considered a waste of money and resources when the population of residence is so similar that it does not justify making accommodations for them.

Elements Unique to Tucson

Only Tucson had specifics in regards to equity. This is likely due to the fact that the city recognized that a significant portion of the population is different economically and thus they need solutions to accommodate all their citizens. However, other cities did not see this as an issue and it is a question of whether they actually did not need it or if it was ignored.

Elements None of the Cities had

Based on this portion of the analysis, at least one of every element was included by a city.

Policy Elements			
Policies	Tucson	ABQ	Hailey
Utilization	1	0	1
Utilization- mandatory	1	0	1
Equity- low income	1	1	0
Low income- mandatory	1	0	0
Equity ADA	1	1	1

ADA- mandatory	0	1	0
Street trees/landscaping	1	1	1
Street trees/landscaping- mandatory	0	1	1
Transit	1	1	1
Transit- BRT	0	1	1
Transit- lightrail	0	0	0
Transit- mandatory	1	0	0
Bicycles	1	1	1
Bicycles- protected lanes	1	0	0
Bicycles- mandatory	1	1	0
Sidewalks	1	1	1
Sidewalks- mandatory	1	1	1
Land use / zoning	0	1	1
Land use / zoning- mandatory	0	0	1
Parking requirements	0	1	1
Parking requirements- mandatory	0	0	1
Lane widths / # of lanes	0	1	1
Lane widths / # of lanes- mandatory	0	0	0

Elements All Cities had in Common

All cities have policies regarding equity/ADA, street trees/landscaping, transit, bicycles, sidewalks, and sidewalks- mandatory. ADA regulations are mandatory, due to federal laws, so it is not surprising to see. Street trees/landscaping, bicycles, and sidewalks are mentioned in all cities likely due to the complete streets program being built on these principles. All cities have mandatory language in regards to sidewalk improvements and this shows safety and concern for those walking or using other modes.

Elements Two Cities had in Common

Any two of the cities actively made efforts to promote utilization, utilization- mandatory, equity- low income, street trees/landscaping- mandatory, transit-BRT, bicycles- mandatory, land use/ zoning, parking requirements, and lane widths / # of lanes. When it comes to utilization, some cities may not find importance in expressing this concept directly due to other policies implying it. Making general policies regarding equity, transit-BRT, land use, parking and lane widths shows some cities value these specific aspects of sustainable road construction while others do not. Whereas with the street trees and bicycles mandatory language dictates that they are more serious about these aspects than others.

Elements One City had

Only one of the cities in each category was able to be marked for low income- mandatory, ADA- mandatory, transit- mandatory, bicycle protected lanes, land use/ zoning- mandatory, and parking requirements mandatory. When it comes to making mandatory action, cities often shy away from doing so with design policies because it can increase costs. It also makes sense for adapting the plan for future changes. However, if nothing is implemented due to a lack of mandatory language, then change may be slow or never occurring. For example, Haliey was looking specifically at land use zoning likely because they are a smaller town and needed mandatory guidelines that may not have been in place yet. As well, Tucson focused on low income - mandatory because they have a larger population with a significant portion being low income.

Elements None of the Cities had

None of the cities had information regarding light rail use or mandatory lane width changes. This is likely due to the expense of light rail as well as how lane width requirements are often dictated by state or federal design policies.

Implementation Initiatives			
Implementation	Tucson	ABQ	Hailey
Cost Estimates-general	0	1	0
Inter- Organizational Coordination-Specific	1	0	1
Measureable Objectives	1	0	0
Monitoring- General	1	0	0
Priorities- General	0	1	1
Roles and Responsibilities-General	1	0	1

Elements All Cities had in Common

There were no elements that every city had in place.

Elements Two Cities had in Common

At least two cities had elements of inter- organizational coordination- Specific, priorities-general, and roles and responsibilities. These would be considered important tasks that would likely need to be performed in order to work on these road systems. However, in some cases, there may be instances where some of the priorities and responsible roles may have to be done on a case by case basis. There is, also, the possibility that Albuquerque surrounding jurisdictions have their own plans and thus why Albuquerque left out making organizational connections. However, leaving out organizational connections means there could be instances where infrastructure does not align across boundaries.

Elements One City had

At least one city had elements of cost estimates- general, measurable objectives, and monitoring- general.

Elements None of the Cities had

Based on this analysis, at least one of every element was included by one city.

Total Points Across all Cities			
Totals	Tucson	ABQ	Hailey
Fact Base	3	1	2
Goals	12	11	9
Policies	13	14	15
Implementaion	4	2	3
Total	32	28	29

Each city has their own objectives when it came to improving their road network with complete streets policies. For example, one of the defining reasons why the complete street program is being implemented is due to traffic congestion and the hopes to relieve it through using more sustainable means of travel. The goals are clear; each city wanted to achieve safer, more accessible roads while also taking a general look at land use and committing to the preservation of the environment, health, and economic vitality of these roads and the spaces they serve. Their policies, however, felt lackluster in approach to unified infrastructure. While all the cities could agree that issues like transit, street tree landscaping, cycling, and equity/ADA policies were needed, the only aspect with mandatory language were sidewalks. As far as implementation goes, none of the cities unanimously had one element for implementation strategies.

This does not mean these policies are bad- one or two policies missing specific elements does not make them bad, it could mean those elements are not required for that city. However, there is always room for improvement. The lack of mandatory language in some policies is disheartening because it allows for opting out at any time. Additionally, the lack of climate change as a driver for these policies is disappointing. While complete streets will not prevent climate change, they can certainly be a part of helping cities adapt to a changing future.

Conclusion

Roads help connect us to our surrounding communities and places. However, we have been focused for the last part of the century on improving conditions for vehicles and not people walking, cycling, or using transit. This is why the complete streets program is an excellent example of helping cities move towards supporting multi-modal transportation. Streets can be designed to safely and effectively move people, using any mode, by utilizing modern design strategies and better building practices.

However, a complete street policy is not a one size-fits-all solution. All cities are different and need unique plans, though some common themes should be apparent. This capstone set out to identify what the common aspects of complete street policies are and what are unique features. To do so, this study focused on three cities Tucson, Albuquerque, and Haliey. The complete streets policies from each location was analyzed through a quality plan rubric (QPR) to see what elements were common and unique.

This rubric showed that the main facts that lead to a complete streets program were traffic related. The cities were ambitious with their goals hoping to provide safety and accessibility while keeping in mind economic viability, environment and health concerns, and focus on general land use. The theme across the policies, however, falls short for mandatory design element language, with sidewalks being the only common theme. Finally there were no instances where all cities participated in the same implementation strategy.

Limits to the Study

Some limits to this project include how the QPR is constructed and awarding points. For example, the question regarding Health and Environment could be separated into deeper questions such as concern for pollution reduction or improving residents health. Also, if more

time was permitted, I would have increased the number of questions in the QPR to look at construction methods for sustainability.

Recommendations for Future Resurch

This is definitely a project that could be scaled up using the same principles and comparing more Complete Streets Cities- even going as far as breaking them down into the differences between cities with ordinances and other froms of complete streets policies. It may also be worth looking into the reasons why some cities are reluctant to use mandatory language or even look at specific roads that have been constructed using the programs of different cities to determine the effectiveness of their program versus another cities. However, findings from this research could help cities ensure the policies they are crafting have essential pieces, as outlined in the discussion, to facilitate success.

References

- Baxter, P., & Jack, S. (2000). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. Retrieved from <https://nsuworks.nova.edu/tqr/vol13/iss4/2/>
- Benfield, K., & Benfield, K. (2013, November 4). A Brief History of How 'Complete Streets' Became Hip. Retrieved from <https://www.citylab.com/transportation/2013/11/brief-history-how-bike-lanes-became-hip/7465/>
- Black, W. (2003) *Transportation: A Geographical Analysis* The Guilford Press: New York
- Complete Streets Come of Age. (n.d.). Retrieved from <https://www.planning.org/planning/2014/may/completestreets.htm>
- Complete Streets policies nationwide. (n.d.). Retrieved November 14, 2019, from <https://smartgrowthamerica.org/program/national-complete-streets-coalition/publications/policy-development/policy-atlas/>.
- Complete Streets Policies Surge in Popularity. Retrieved from <https://www.governing.com/columns/urban-notebook/col-complete-streets-policies-surge-popularity.html>
- Complete Streets Albuquerque. (2019, December 4). Retrieved from <https://www.cabq.gov/council/documents/o-64-2.pdf>
- Complete Streets Hailey. (2019, December 4). Retrieved from https://www.haileycityhall.org/planning/ordinance/municipal_code/Ord%20-%20MC_Title_18_CC_021411.pdf

Complete Streets Tucson. (2019, December 4). Retrieved from

https://www.tucsonaz.gov/files/bicycle/documents/Tucson_Complete_Streets_Policy_2.5.2019.pdf

Ink, S. (n.d.). About NACTO. Retrieved from <https://nacto.org/about/>

Maass, A. (2016). The University of Arizona University Libraries UA Campus Repository. *Analysis of Best Management Practices for Addressing Urban Stormwater Runoff*, 1–36. Retrieved from https://repository.arizona.edu/bitstream/handle/10150/608332/Maass_Amanda_SBE_498_Spring_2016.pdf?sequence=1&isAllowed=y

National Complete Streets Coalition. (2020, April 3). Retrieved from

<https://smartgrowthamerica.org/program/national-complete-streets-coalition/>

Ordinance NO. 11621 (2019, December 4). Retrieved from

https://www.tucsonaz.gov/files/transportation/Tucson_Complete_Streets_Policy_adoped_via_ordinance_2.5.2019_highlighted.pdf

Resources and Guidelines. (n.d.). Retrieved from

http://www.pedbikesafe.org/pedsafe/resources_guidelines_sidwalkswalkways.cfm

Schultheiss, W., Sanders, R. L., & Toole, J. (n.d.). A Historical Perspective on the AASHTO Guide for the Development of Bicycle Facilities and the Impact of the Vehicular Cycling Movement .

Retrieved April 8, 2020, from [http://tooledesign.com/wp-](http://tooledesign.com/wp-content/uploads/2018/10/TRB_Paper18-05962_HistoryofAASHTO_BikeGuide_TRB_rev.pdf)

[content/uploads/2018/10/TRB_Paper18-05962_HistoryofAASHTO_BikeGuide_TRB_rev.pdf](http://tooledesign.com/wp-content/uploads/2018/10/TRB_Paper18-05962_HistoryofAASHTO_BikeGuide_TRB_rev.pdf)

Snyder, T., Schmitt, A., & Andersen, M. (2013, April 9). U.S. DOT to Challenge AASHTO

Supremacy on Bike/Ped Safety Standards. Retrieved from

<https://usa.streetsblog.org/2013/02/28/u-s-dot-to-challenge-aashto-supremacy-on-bikeped-safety-standards/>

Snyder, T., & Schmitt, A. (2013, April 11). How to Write a Complete Streets Policy. Retrieved from <https://usa.streetsblog.org/2013/04/08/how-to-write-a-complete-streets-policy/>

Sustainable Complete Streets. (n.d.). Retrieved April 8, 2020, from <https://nacto.org/wp-content/uploads/2012/06/National-Complete-Streets-Coalition-No-Date.pdf>