

Determining the Feasibility of an IQP Project Center in Santa Fe, New Mexico

An Interactive Qualifying Project Report
Submitted to the Faculty of
Worcester Polytechnic Institute
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ABSTRACT

The purpose of this project was to establish an IQP Project Center in Santa Fe, New Mexico. Starting by consulting with Santa Fe institutions in the early months of planning, we began locating projects and project sponsors for future years. After arriving at the site of the new project center, we continued to find sponsors and projects as well as determining the logistic feasibility of the project center.

To ensure that the projects we were finding were appropriate for completion, two example IQPs were selected and the breadth of each was carried out to the fullest extent, simultaneously proving that IQPs were feasible in Santa Fe, and that there existed IQP topics in both Urban Development and Water Resource Management in Santa Fe.

Using our own itemized expenses, we estimated the out of pocket cost for students in Santa Fe. We also researched options for transportation and housing as well as exploring other areas that would be of interest for students. These results were compiled in a cost analysis for the IGSD.

We then used our findings concerning both the existence of projects and cost feasibility as well as a survey provided by the IGSD concerning off-campus student applicants and developed an approach to attract students to the new Project Center. This development is accompanied by pamphlets and reading materials for prospective students.

The material presented in this report concludes that an off-campus IQP Project Center in Santa Fe, New Mexico is feasible and recommended. We believe that is report supplies the IGSD with every reason to create a Santa Fean IQP project center.

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EXECUTIVE SUMMARY

The material presented in this report assesses the feasibility of establishing an off-campus IQP project center in Santa Fe, New Mexico. In its assessment, we analyze the basic but necessary logistics of the creation and maintenance of a Santa Fe Project Center, we research and select potential projects and project sponsors for future students, and we develop a marketing strategy to inform the students of WPI of the potential of a project center in Santa Fe.

Santa Fe has a current culture as rich and interesting as its past. Artists, Technologists, Nobel Prize Laureates, and Scientists are attracted to Santa Fe for its openness to the unique and innovative. Also located nearby are eight Native American Pueblos as well as Los Alamos National Laboratories, one of the most renowned research institutions in the world. Santa Fe sits at the hub of Past and Future, and incorporates a blend of Art and Science with every aspect of itself.

The Interactive Qualifying Project that we chose to complete was unusual in nature, as it was an IQP whose result of its deliverables would be a project center that would be able to establish future IQPs and, ultimately, MQPs. This has not been the first time a group of students have been selected to help start an IQP project center, a similar process has been done before in the creation of the Venice IQP center, now one of the most active and successful off-campus project centers at WPI. Due to this precedence our project seemed to be a perfectly reasonable undertaking.

Despite the incredible attractiveness of the location, we did not automatically assume that an IQP project center in Santa Fe could be successful. Establishing a project center was as great a responsibility as it was an honor and the task was not taken lightly. Great care was taken in every aspect of its organization. The obvious place to start was to ensure that Santa Fe contained the most basic requirements of a project center, namely sources of housing, transportation, and projects. For a project center to truly grow it requires one last thing; students. We planned to garner the interest of future students by visiting areas in and around Santa Fe and ensured that those places were popular to students. Should the project center meet all of the following criteria, we would then develop a marketing strategy out of our experiences to help inform the students of WPI of the attractiveness of the Santa Fe project center.

Seeking to build a firm foundation of projects for the project center, authorities from five well-established city organizations were located and interviewed concerning aspects of Santa Fe. While conducting other projects in and around the city, all other opportunities to meet with sponsors and introduce them to the WPI project process were presented and utilized. We felt that these relationships would lead to an invaluable source of off-campus projects for WPI.

Cost is often the most deciding factor among students when choosing an off-campus project center, and so the logistics of a potential project center in Santa Fe was very closely analyzed. Our cost results were more than satisfactory. The Santa Fe project center would be considerably less expensive than both existing domestic project centers in every category, with the single exception of the travel cost between Santa Fe and Boston. The explanation of this is that due to the proximity of Boston to Worcester, there is no required travel cost for the Boston project center. The current data supports that Santa Fe would be the cheapest domestic project center to date.

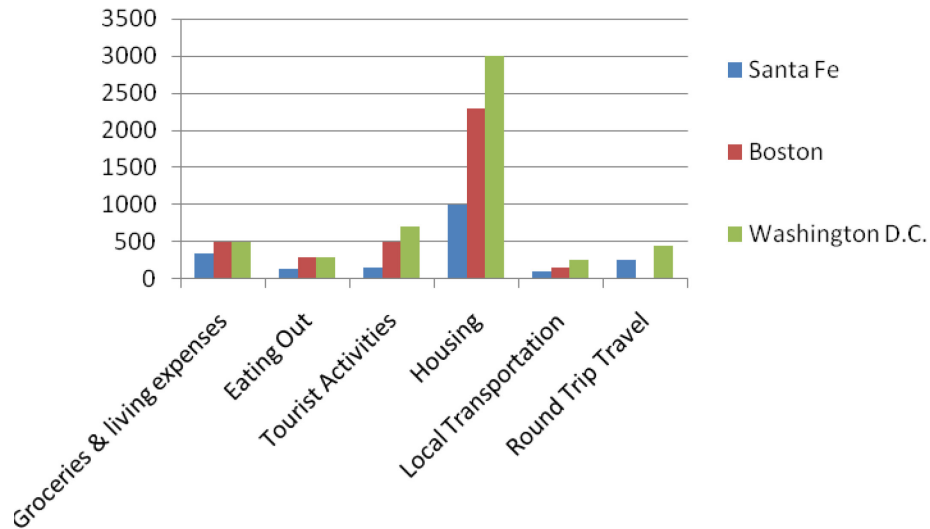


Figure 1: Comparison of Cost Atomization between Santa Fe and Domestic Project Centers

The results of our report lead us to conclude that since the city of Santa Fe contains all required aspects of a successful project center it would be feasible to establish a project center for the maximum number of students. Also, many of the contacts established in Santa Fe could be used for sources of Major Qualifying Projects, especially for underserved majors who may not have previously had the option for off-campus MQPs. It is suggested that the future Santa Fe project center be used for the maximum amount of IQPs allowed for a project center.

A Santa Fe project center would have all of the necessities of a project center as well as aspects that no current project center can provide; a unique cultural environment in one of the oldest locations in the United States, a resource of technology, science and culture yet untapped by WPI, and - most importantly - an openness for collaboration with everyone who holds an interest and shows a level of understanding. A great potential exists in Santa Fe for WPI, and it should not be wasted.

TABLE OF CONTENTS

1	INTRODUCTION.....	10
2	BACKGROUND	13
2.1	HISTORY.....	13
2.2	ENVIRONMENT.....	14
2.3	ACEQUIAS.....	16
3	METHODOLOGY	18
3.1	DETERMINING LOGISTICS.....	19
3.1.1	<i>Cost.....</i>	<i>19</i>
3.1.2	<i>Housing</i>	<i>19</i>
3.1.3	<i>Transportation</i>	<i>20</i>
3.1.4	<i>Sponsors.....</i>	<i>21</i>
3.2	IDENTIFYING POTENTIAL PROJECTS AND SPONSORS	22
3.2.1	EXAMPLE IQP: ACEQUIAS PROJECT.....	22
3.2.1.1	Overview.....	23
3.2.1.2	Scope	24
3.2.1.3	Additional Contributions: Locating Future Project Sources.....	27
3.2.2	EXAMPLE IQP: INTERACTIVE COMMUNITY PLATFORM.....	27
3.2.2.1	Walkability Application.....	28
3.2.2.2	Business Listings	28
3.2.3	EXAMPLE MQP: SANTA FE-VENICE PUDDLE PROJECT	29
3.3	DEVELOPING A MARKETING STRATEGY	30
4	RESULTS AND ANALYSIS.....	31
4.1	PROJECT CENTER LOGISTICS.....	31
4.1.1	<i>Cost.....</i>	<i>31</i>
4.1.2	<i>Housing</i>	<i>33</i>
4.1.3	<i>Transportation</i>	<i>33</i>
4.2	POTENTIAL PROJECT TOPICS AND SPONSORS	35
4.2.1	<i>PROJECT EXPERIMENTS.....</i>	<i>35</i>
4.2.1.1	EXAMPLE IQP: ACEQUIAS PROJECT.....	35
4.2.1.2	EXAMPLE IQP: INTERACTIVE COMMUNITY PLATFORM	37
4.2.1.2.1	Walkability Application	37
4.2.2	EXAMPLE MQP: SANTA FE-VENICE PUDDLE PROJECT	39
4.3	MARKETING STRATEGY	40
5	CONCLUSION AND RECCOMENDATIONS.....	46
5.1	<i>RECOMMENDATIONS FOR PROJECT CENTER DIRECTORS.....</i>	<i>50</i>
5.2	<i>RECOMMENDATIONS FOR STUDENTS.....</i>	<i>51</i>
5.3	<i>FUTURE PROJECTS</i>	<i>51</i>
6	BIBLIOGRAPHY.....	53
7	APPENDICES.....	56
7.1	APPENDIX A: LIST OF POTENTIAL PROJECT CONTACTS	56
7.2	APPENDIX B: LIST OF POTENTIAL PROJECTS.....	63
7.3	APPENDIX C: MINI-WALKABILITY MOCK-UP	65
7.4	APPENDIX D: MINI-IQP ACEQUIA MOCK-UP.....	70
7.5	APPENDIX E: MINI-MQP PUDDLE PROJECT MOCK-UP	71
7.6	APPENDIX F:TRANSPORTATION	72
7.7	APPENDIX G: HOUSING CONTACTS.....	95

7.8	APPENDIX H: HOUSING DATA SETS.....	96
7.9	APPENDIX I: INTERVIEW CHECKLIST	97
7.10	APPENDIX J: EMAIL TEMPLATE.....	99
7.11	APPENDIX K: RESTAURANTS	100
7.12	APPENDIX L: TOURIST ACTIVITIES	101
7.13	APPENDIX M: EVENTS AT THE COMPLEX.....	106
7.14	APPENDIX N: REQUIREMENTS FOR BUSINESS REGISTRATION.....	108

TABLE OF FIGURES

Figure 1: Comparison of Cost Atomization between Santa Fe and Domestic Project Centers.....	6
Figure 2: WPI Project Based Learning	10
Figure 3: WPI Enrollment.....	11
Figure 4: Stereograph of the Palace of the Governors (Through the Lens).....	13
Figure 5: Don Diego De Vargas	13
Figure 6: General Stephen Watts Kearney	14
Figure 7: The New Mexico State Capitol Building in Santa Fe	14
Figure 8: An Example of a Santa Fean Art Piece, 2009	15
Figure 9: An Acequia Reservoir in La Cienega, 2009.....	16
Figure 10: A Flowing Acequia in La Cienega, 2009.....	17
Figure 11: Map of locations of La Cienega Site Visits in relation to the Santa Fe Complex and the State Engineers Office	25
Figure 12: La Cienega Site Visits	26
Figure 13: Acequia-Based visits in Santa Fe	27
Figure 14: Table of Cost Categories	31
Figure 15: Cost Break Down	32
Figure 16: Bus routes of Santa Fe.....	34
Figure 17: College Student Example Ranking	38
Figure 18: Puddle Project Design Diagram	40
Figure 19: Results of IGSD Student Poll of Reasons for Not Applying to Off-campus Project Centers	42
Figure 20: Results of IGSD Student Poll of Reasons for Applying to Off-campus Project Centers	43
Figure 21: Santa Fe Trifold Marketing Pamphlet (Page 1)	44
Figure 22: Santa Fe Trifold Marking Pamphlet (Page 2)	45
Figure 23: Results of IGSD Student Poll of Reasons for Not Applying to Off-campus Project Centers	46
Figure 24: An Itemized and Overall Comparison between Santa Fe and Existing Domestic Project Centers	47
Figure 25: Table of Domestic Project Center Costs	47
Figure 26: Results of IGSD Student Poll of Reasons for Applying to Off-campus Project Centers	49
Figure 27: Where Students Completed Their Projects Last Year (2007-2008).....	50
Figure 28: Projected 2009-2010 IQP Project Completion.....	50

1 INTRODUCTION

There are currently over 2600 universities in the United States alone, and all of them are in a perpetual struggle to provide students with the best education possible and the tools needed to succeed in a professional setting. (Association of American Colleges and Universities) This means providing students with theoretical knowledge and the experience necessary to apply it. To effectively accomplish this, universities often utilize the method of project based learning which applies the practice of learning by doing. Students are set into groups and given a common goal. From there, students work together to gather information, brainstorm ideas, determine a solution, and then implement that solution. This method has also become popular to solve real world problems through the practice of project based work. This practice creates an effective business strategy by applying the benefits of project based learning in a professional setting.

WPI was founded on the principle of project based learning. Our grading system, our graduation requirements, even our school slogan, "Theory and Practice," all orbit around this concept. Project based learning is exemplified at WPI through one Sufficiency Project and the two qualifying projects that students are required to complete. The first qualifying project is completed in the student's junior year and is titled the Interactive Qualifying Project. This project focuses on science's and technology's impact on society. The second project, the Major Qualifying Project is completed in the student's senior year and is a major related technical project, exemplifying the student's transition from a student to a professional. The figure below shows a timeline of a typical student's project calendar. The successful integration of over 90% of WPI students into more than 200 companies and graduate schools is a direct result of the qualifying project system (WPI Admissions)

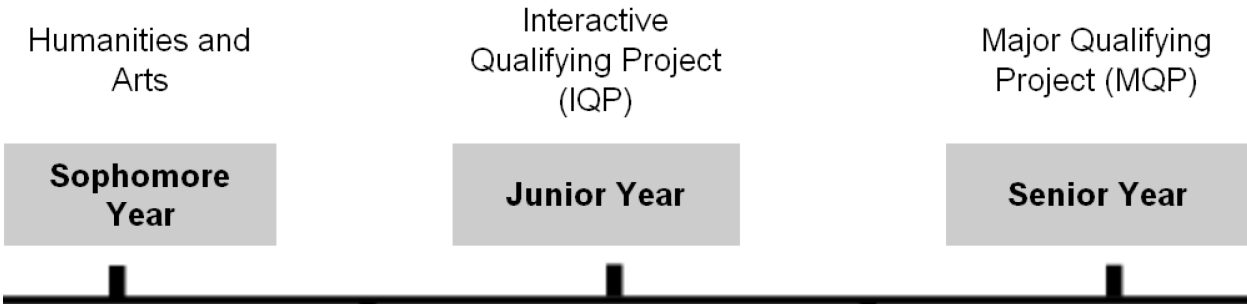


Figure 2: WPI Project Based Learning

The city of Santa Fe is making a concerted effort to become a sustainable community through many efforts including project based work. This is shown through the local government's support of project based organizations, such as the Santa Fe City Council's unanimous vote to give \$165,000 in aid to the Santa Fe Complex. (Santa Fe Complex) The Complex is unique in its ability to bring together seemingly unrelated fields of study for the purpose of solving issues faced by the community. Focus on such issues allows for a symbiotic relationship between the community and its researchers furthering progress towards a more sustainable Santa Fe.

The introduction of new majors at WPI, such as Robotics Engineering and Interactive Media and Game Development, as well as the growing influx of WPI students to these new majors creates a lack of project centers for WPI students. This dearth also prevents students, not

of these majors, from exploring these new fields within the context of their Interactive Qualifying Projects.

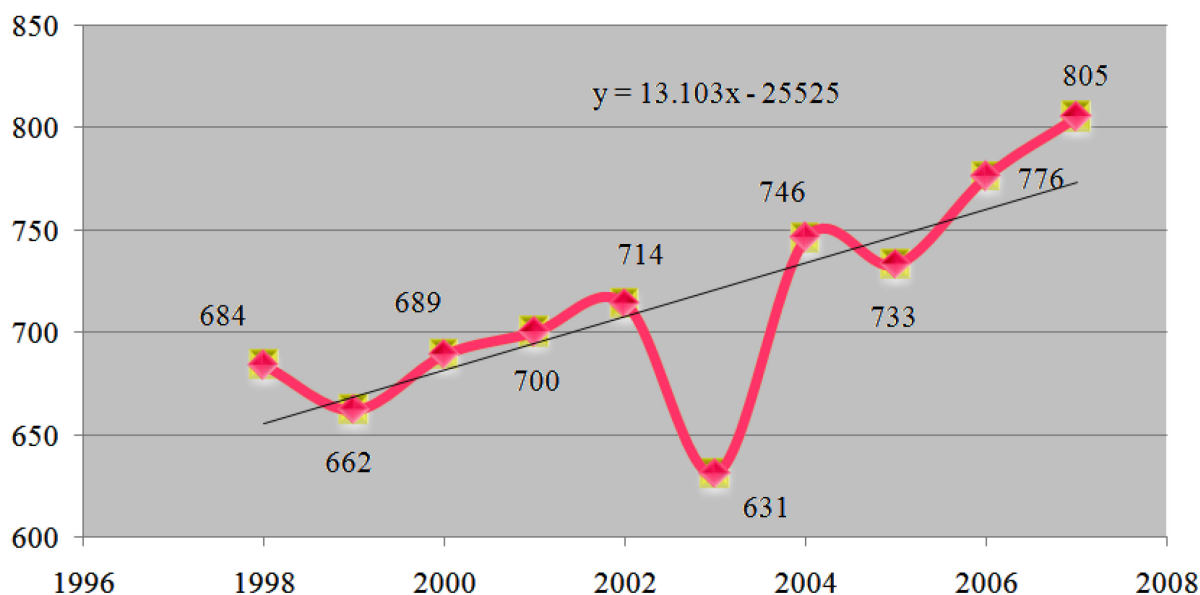


Figure 3: WPI Enrollment

Santa Fe provides a diverse and exotic culture by mixing technology with art. Many Nobel Prize winners and other distinguished scientists inhabit Santa Fe for its blend of culture and technology. Today, the Santa Fe Complex continues the tradition of innovation by expanding upon the boundaries of interactivity and research technologies. The Complex applies their research to benefit Santa Fe and the surrounding communities. The inhabitants of Santa Fe are just as familiar with the new concept of project based learning as their own history and traditions.

Before opening any project center, substantial research must be done. Most center assessments have been handled by the Interdisciplinary & Global Studies Division (or IGSD), though some very successful centers have been researched and begun by students. Although the basic required research information for each project center is the same, the context varies greatly each time.

WPI project centers exist for the purpose of providing students with off campus opportunities to participate in project based learning. Currently, many majors are sufficiently served, and existing project centers are well-established. However, with increasing numbers of students interested in project based learning, coupled with the rising cost of centers abroad, there is a need for a less expensive center. The IGSD has a relative lack of cheap, domestic centers, a location which can most likely be established in Santa Fe, New Mexico. There are many advantages to this location, predominantly that it provides a less expensive center in the United States saving students over \$2000 as compared to currently domestic centers in Boston and Washington, DC. (WPI Academics) This center could also help under-served majors find a place to participate in off campus project based learning.

The goal of our project is to determine the feasibility of a sustainable project center in Santa Fe, NM. The methods we will use in determining this will be investigating community issues, developing relationships with organizations in order to find suitable projects, and ensuring that the majority of issues and projects will appeal to WPI students. To investigate

community issues we will have to develop an understanding of the problems faced by students, which will be done by researching the methodology involved in completing three interactive qualifying projects and one major qualifying project. We will also address community issues by forming and improving relations between WPI and the citizens of the greater Santa Fe area. We will develop a marketing strategy that attracts student interest by researching which factors make a project center appealing. The project center itself will be a less expensive alternative providing off campus qualifying projects for WPI students.

2 BACKGROUND

Santa Fe has both a rich history and environment with hundreds of years of tradition and culture. It also has endured hundreds of years of conflict and struggle, from ancient Mexico-American border disputes and Native American uprisings to present day water crises. It supports a large rural community who still to this day embrace their history in using Acequias, traditional irrigation methods that date back to the Spanish Colonization of the West.

2.1 History

Santa Fe, New Mexico is the oldest capital city in North America and also the oldest European city west of the Mississippi (Santa Fe History). It is the site of both the oldest public building in America, the Palace of the Governors (Palace of the Governors), and the nation's oldest community celebration, the Santa Fe Fiesta (Santa Fe History of Fiesta), established in 1712 to remember the Spanish reconquest of New Mexico in the summer of 1692.

New Mexico has officially been a State for less than one hundred years. The city has been the capital for the Spanish "Kingdom of New Mexico," the Mexican province of Nuevo Mejico, the American territory of New Mexico (which contained what is today Arizona and New Mexico) and -since 1912- the state of New Mexico(Santa Fe History). From 1050 to 1607 Santa Fe' was originally occupied by a number of Pueblo Indian villages – mostly the Tewa people. In 1607 the Spaniards and Franciscan missionaries arrived, and colonized the region with considerable success. A Pueblo Indian revolt in the 17th century killed 400 of the 2,500 Spanish colonists and drove the survivors into Mexico. Don Diego De Vargas reconquered the region of Santa Fe in 1692.



Figure 5: Don Diego De Vargas
(Yselta del Sur Pueblo)



Figure 4: Stereograph of the Palace of the Governors
(Through the Lens)

From 1692 to 1821 Santa Fe recovered from the Pueblo Indian revolt and continued to grow and prosper as a city under Spanish rule, even though the people of Santa Fe endured numerous conflicts with the Comanche. The more amicable Apaches and Navajos (who had formed an alliance with Pueblo Indians) “had maintained a successful religious and civil policy of peaceful coexistence” with the city of Santa Fe and its people (Santa Fe History).

In 1821 Mexico gained its independence from Spain, and Santa Fe became the capital of the province of New Mexico. Spain had, at this point, been almost completely removed from North America. It was during this time that American

trappers and traders began moving into the region to take advantage of the Southwest.

It was this colonization that would lead to the United States ultimately gaining control of all the Southwest from Mexico. Over-colonization in Texas led to its annexation by America in 1845, and by 1846 Mexico and America were at war. In the first year of the Mexican American War, Stephen Watts Kearny, an American army general, conquered Santa Fe. Two years later in 1848, Mexico signed the Treaty of Guadalupe Hidalgo, giving New Mexico and the rest of the Southwest to the United States. Border disputes continued between Mexico and the United States until the Gadsden Purchase of 1854 (Gadsden Purchase, 1853-1854).

In March 1863, during the American Civil War, the Confederate flag of General Henry Sibley flew over Santa Fe (Santa Fe History). New Mexico was reclaimed by the North after the war was resolved in 1865 (Civil War). With the Railroads and the invention of the telegraph in 1880 (The History of the Electric Telegraph and Telegraphy), Santa Fe and New Mexico experienced an unprecedented period of growth and prosperity, finding new settlers and migrants from both the Eastern United States and Mexico.

Having changed so many hands so many times for so many reasons, Santa Fe has generated a culture unique to any other, while maintaining the spirit of America's embrace of diversity.

2.2 Environment

Santa Fe is mountainous, and classified as semi-arid (Santa Fe: Geography and Climate). The United States Census lists Santa Fe as the highest state capital in the United States at 7,199 feet (2134 m) (Santa Fe Census). As of 2000, the land area of Santa Fe is 37 square miles of New Mexico's total 121,356 square miles. Santa Fe contains 1,666.1 persons per square mile of New Mexico's 15 persons per square mile (Santa Fe Population). Santa Fe experiences very low humidity, with only 14 inches of rain a year. However, snowfall averages 32 inches annually with deep snow remaining year round at the highest altitudes (Santa Fe Census).

The United States Census has listed Santa Fe with a population of 72,000 as of 2006, marking a 14.5% increase since 2000. Comparatively, the population percent change of the State of New Mexico between 2000 and 2006 has been only 7.5% (Santa Fe Population).

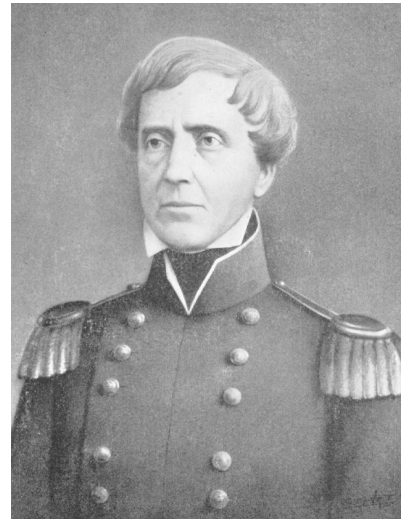


Figure 6: General Stephen Watts Kearney
(Journal of San Diego History)



Figure 7: The New Mexico State Capitol Building in Santa Fe
(State Capitol Wreath-laying Event)

Much of Santa Fe's growth occurs outside the official city limits. Today, there are nearly 17,000 people in the urban area outside the city, accounting for 21% of the urban area population (Santa Fe Quick Facts).

As Santa Fe is a state capital, it contains New Mexico's State House where the Governor, State Engineer, and other State officials reside. The current mayor of Santa Fe is David Coss. Residents of the City of Santa Fe are represented by eight elected City Councilors, two from each of the City's four Council Districts. Elections are held every two years and Councilors are elected to four year terms. City Council meetings are held on the 2nd and 4th Wednesday of every month at the City Council Chambers, which are located at 200 Lincoln Avenue, Santa Fe, NM. (Santa Fe Government)

As of 2006, Santa Fe supports a labor force of 77,000 and over 5,093 registered businesses, compared to 5,108 registered businesses in 2005. However, the per capita personal income is \$42,000, having grown from \$39,000 in 2005 (Santa Fe Government). Despite the current national economic decline, the City of Santa Fe is nothing but conducive to the growth of businesses big and small. Online resources are provided for businesses on the Santa Fe government website (Santa Fe Trends 2009).

Though the average age of New Mexicans is one of the highest state averages in the country, the Santa Fe district's student population has ranged from 13,300 to 13,800 during the past ten years (Santa Fe Trends 2009) The graduation rate of Santa Fe public high schools is 83%, slightly lower than the statewide graduation rate of 87% (Santa Fe Trends 2009). Despite the below average graduation rate, higher education exists as well in Santa Fe; Santa Fe Community College, St. John's College, and the Santa Fe Institute being some of the outstanding examples.

Santa Fe is "The City Different," having a culture as complicated as its history. Many cultural centers exist throughout Santa Fe, but of all cultural centers, the Plaza remains the central part of the city, hosting Indian and Spanish markets and other annual events as well as community gatherings and concerts. Many know it as "the heart of Santa Fe," being the location for the annual Santa Fe Indian Market, which is responsible for almost \$19 Million of economic impact (Santa Fe Indian Market's Economic Impact). Efforts have been made to create a hub for all cultural activities, most notably the online "CultureMap" of the City of Santa Fe Convention and Visitor's Bureau (Santa Fe Culture Map). Beginning in mid-2005, CultureMap is a subset of the CultureNet initiative, providing a comprehensive display of events and activities throughout Santa Fe (Santa Fe Plaza Map). CultureNet also developed the Santa Fe Arts & Culture Portal for the City of Santa Fe. The Portal contains a Santa Fe cultural events calendar, CultureMap, electronic ticketing, classifieds, online magazine, trip/visitor information, online marketplace, arts directory, useful community information, and a Google-driven search engine (New Mexico Culture Net).

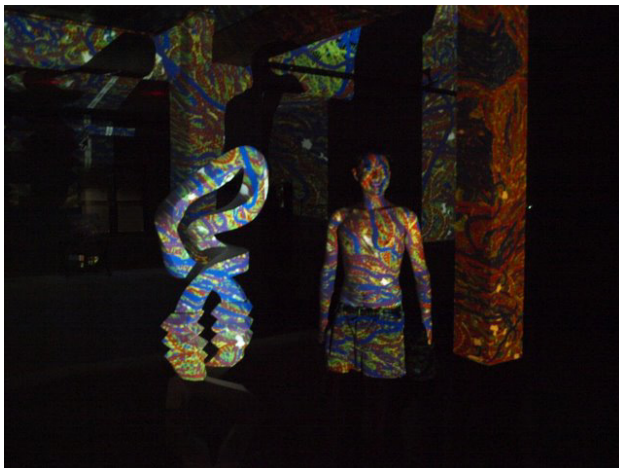


Figure 8: An Example of a Santa Fean Art Piece, 2009

Artists play a very important role in New Mexico's cultural vitality and economic prosperity. Santa Fe ranks first place nationally in the number of "writers/authors" and "fine artists, art directors and animators" per capita (Santa Fe Trends 2009). This country's artists represent a powerful labor force whose economic contributions total approximately \$70 billion dollars annually.

According to The National Endowment for the Arts survey, half of the U.S. adult population attended at least one of seven arts activities in the previous 12 months (Artists In Workforce). This translates into nearly 100 million different people attending one or more of these events each year. New Mexico is one of the states that lead the way in the arts. Sunbelt cities now dominate the list of metropolitan areas with the highest per capita concentration of artists (Santa Fe Trends 2009). Of the numerous arts centers and activities of Santa Fe, the most notable are The Railyard Performance Center and The Meow/Wolf Artist Collective.

2.3 Acequias

Acequias are community-operated waterways that can be traced back to the 18th Century Spanish colonization of what is now the Southwest United States of America (Acequia Fact Sheet). Acequias are especially abundant in New Mexico and small communities outside of Santa Fe, and were created so that settlers in the area had a means of irrigating their dry, useless land into fertile farms. Some accounts trace them back even further than that. Archeologists have come to a general consensus that acequias originated with Pueblo Indians or Spanish settlers, though some accounts state that Pueblo Indians already had irrigation tactics when the Spanish arrived in the 1700's. Conflicting reports from other settlers also state that irrigation waterways were built "as if by the Spaniards" (Acequias Ranchers). Thus, archeologists have decided that the Spanish arrived with previous irrigation experience and adapted their skills based on Pueblo Indian irrigation skills, merging Spanish methods with the native expertise of the local ecosystem. As the area became more developed and established as the city of Santa Fe, it was decided that acequias would fall into two classes. One was considered a legally formed municipality, which is only reserved for Indian Pueblos. The other classification ordered the acequia to be maintained by the municipality. For example, the Santa Fe City Council had the responsibility of allocating water for irrigation and that gave them the power to dictate how acequias were used while the Indian Pueblos were given the rights to decide how they would allocate irrigation water for each Pueblo on their own.

Water rights are considered property rights; they can be bought and sold like property and are not tied to the land that the water happens to be on. However, unlike property rights they are distributed based on priority law. Priority law is based on the person or organization that has proof of using the water first. This is extremely different than the water law that exists on the east coast, which is based on riparian principle. Riparian principle is based on the concept of sharing and does not assign rights based on seniority due to the abundance of water on the east coast. Given the fact that Native

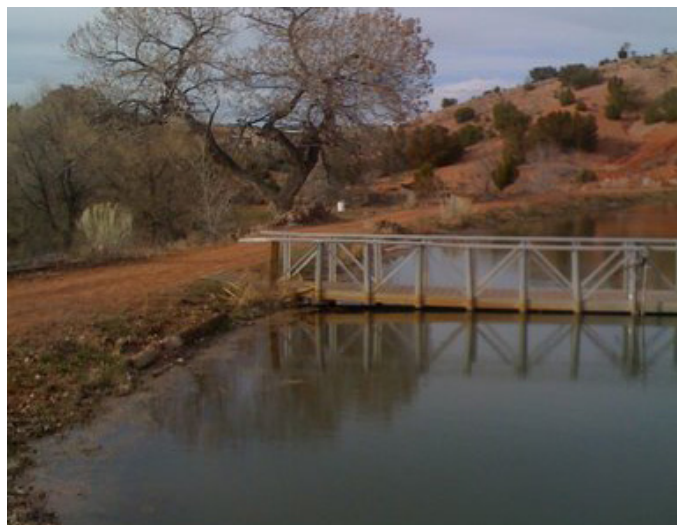


Figure 9: An Acequia Reservoir in La Cienega, 2009

American tribes and first nations are known to be the first people to inhabit New Mexico, they are given the highest priority rights for their land.

Acequias are usually next in line following the Native American Pueblos, because they are legally a governmental body. Some early Hispanic settlers have equal rights as well, which were granted under the Treaty of Guadalupe Hidalgo in 1848. The Treaty of Guadalupe Hidalgo was the end of the Mexican-American War, in which Mexico ceded approximately 525,000 square miles to the United States. This land included part of California, Colorado, Arizona, New Mexico and Wyoming as well as the whole of California, Nevada and Utah. (The Treaty of Guadalupe Hidalgo) Included in this treaty were water rights that were granted to some early Hispanic settlers that inhabited the area when the treaty was signed.

Next in line following the Native American Pueblos and acequias is anyone that can prove beneficial use before 1907. Most of the time, this is given to local farmers that have record of using water before 1907. And after 1907, it is established on the same basis as “first in time, first in right”. However, after 1907, rights are considered junior rights and may be denied if there are drought conditions in the state. Junior rights have different tiers as well, determined in same manner. All federal projects after 1907 still claim priority rights. Two examples of this are the Elephant Butte Irrigation District and the Middle Rio Grande Conservation District. Junior water rights can be awarded to any owner of land, but landowners still have a right to dig a well on their own property, as dictated by legal documents in New Mexico.



Figure 10: A Flowing Acequia in La Cienega, 2009

3 METHODOLOGY

The overall goal of this project was to determine the feasibility of a sustainable project center in Santa Fe, New Mexico by investigating community issues as well as improving relations with the appropriate citizens of Santa Fe and the surrounding communities. To accomplish this goal three objectives were developed that would adequately assess the feasibility of a WPI IQP Project Center in Santa Fe, New Mexico. They were:

1. Determine the logistics required to run a sustainable project center.
2. Identify potential project topics and sponsors.
3. Develop a marketing strategy to garner the interest of WPI students.

The project was completed during the fourth quarter of the 2009-2010 WPI School Year, or term D10 as it is called at WPI. Our team of six students was in Santa Fe from March 14th, 2009 to May 9, 2009 exploring the feasibility of the project center. The exploration took place mainly within the city limits of Santa Fe for the majority of the project, though there were some excursions outside of the city limits to the town of La Cienega and the town of Española. Such trips were infrequent but were very possible for students to travel to, and also laid the groundwork for very workable spatial boundaries for a future project center.

The objectives laid the conceptual boundaries for our project and sent us on a mission to explore the boundaries that would normally face a fully operating WPI project center. This means that the inquiry of this project would explore project topics that would benefit Santa Fe. Current issues in Santa Fe were researched and three project topics that had the greatest potential for success in Santa Fe were decided on. The inquiry also took on the logistics of a project center, including examining all of the underpinnings of an up and running project center. Included also was an investigation into a marketing strategy to garner the interest of WPI students. This is essential to the success and sustainability of a new WPI project center due to the wealth of attractive project centers the WPI already has around the world.

Section 3.1, entitled *Determining Logistics*, is devoted to an overview of the methods utilized to analyze the logistics of creating a project center and how the assessment of Santa Fe was conducted. Section 3.2, entitled *Identifying Potential Project Topics and Sponsors* illustrates the techniques utilized to find potential IQP project topics as well as potential sponsors through completing mini IQPs and setting up meetings with local officials and community members. Section 3.3, entitled *Developing a Marketing Strategy* shows the way in which a strategy was developed and tools were created to attract WPI students to Santa Fe to complete their IQP.

3.1 DETERMINING LOGISTICS

The main goal in determining the logistics for starting a project center is to ensure the students of WPI are able to live and thrive in Santa Fe with no effort on their part so that they make focus purely on completing the objectives of their individual IQP and MQP projects.

The logistics section was broken into four objectives, each one focusing on an area important for students and projects to succeed.

- Cost
- Housing
- Transportation
- Sponsors

3.1.1 COST

The cost of traveling to, and living in, an off campus location is of great concern to students looking to complete their IQP at a project center. Thus as part of the bootstrap project the students involved tracked all expenses they accrued while living in Santa Fe. The expenses were placed into the same standard categories that other project centers utilize (Global Perspective Program).

These categories are:

- Round trip travel to and from the site (Airfare)
- On site commuting costs
- Groceries/living expenses
- Dining out
- Weekend tourist activities
- Housing

The travel cost was decided to be the average of the 6 airplane tickets from the bootstrap team. On site commuting costs were decided to be the cost of a two month unlimited ride bus pass within the city of Santa Fe. To estimate the total cost of groceries, general living expenses, dining out, and weekend tourist activities all purchase receipts were saved and cataloged. The cost of housing was determined by the average cost of identified hotels and local apartments that met WPI housing requirements. The compilation of all of these costs determines the average out of pocket expenses for students, tuition not included.

3.1.2 HOUSING

WPI respects its students and their wellbeing, and as a result is very strict in the requirements of housing. Potential housing for students must be thoroughly tested to meet a number of requirements, the list of which is provided by the IGSD and included in the Appendix. All of the requirements on the list simply ensure a safe and comfortable living environment for students. In addition to this checklist, other factors include the presence of furniture, proximity to the Santa Fe Complex, and cost. Since it has been decided that the major pull and ability to market the IQP center depends on its affordability, cost was a major consideration in the housing location process, though it was not be the most important thing to consider. The most important

factor in addition to those in the checklist is availability. The potential residences must be available for students immediately upon arrival. How cheap a location may be will mean nothing if it is not available for use.

Furthermore, the housing market is also in fluctuation, though with the amount of residential construction currently underway and the population growth not significantly increasing, the costs are not expected to rise but to rather drop (Santa Fe Trends 2009). Due to the necessity of other topics in this report, a full economic analysis of the housing market in Santa Fe could not be made.

Please note that at no point were safety deposits considered in the cost, as they would be returned to the residents and were a variable that may obscure the actual cost of housing if included. However, as college students are used to roommates, the arriving students could very easily share a room, which would considerably lower the cost per person, though it would require them locating more beds.

Scheduling housing a year in advance is usually limited to hotels and colleges, both of which were be considered. Although apartments are preferable, they must meet the criteria of availability. Presently, the Project Center is proposed to be used one term out of every school year, and it would be fiscally irresponsible to ensure apartment housing for a single term by paying for a Santa Fe apartment year round. Therefore the option of apartments must be considered on a term by term basis. The arriving students and faculty will locate appropriate apartments the term before their IQP.

Available housing is always being advertised and information of housing and hotels are easily accessible. However, certain additional agreements may be required for the use of local college housing and local apartments. Ultimately, a list of every potential residential source -with appropriate information concerning each - will be submitted for the consideration of the IGSD (WPI Housing Checklist).

3.1.3 TRANSPORTATION

An intricate part of any project center is the ability for students to be able to get where they need to go. Santa Fe has four main avenues of transportation available to students, walking, bicycling, driving, and riding public transportation. Before any project center can begin it is essential to map out all available means of transportation to students. In order to map out these different means of transportation we used each of them as well as researched them through online searches, phone calls, and interviews.

Walking received the most in-depth research as a separate walkability survey was conducted as part of the Interactive Community Platform.

Assessing the bikeability of an area is similar to assessing the walkability, only the range is increased. As the walkability section of the Interactive Community Platform is adaptable, the walkable distance can be adjusted so that it becomes a bikeable distance. However we will need to ensure that there are bike shops within a close enough area so that students have access to bikes and, if a bike were to become damaged, the student would have somewhere to get repairs done.

Public transportation was the most used means of transportation after walking, it is cheap, readily available, and very dependable. In order to explore public transportation we first located all of the relevant information on the bus company's website. We then rode many of the public transportation routes to ensure that the buses kept on schedule, were well maintained, and that they were acceptable for students.

Having a vehicle in Santa Fe would greatly reduce any transportation issues that might arise. However, it is unlikely students will drive to Santa Fe or be able to obtain a car rental easily due to the restrictions and fees set in place for younger drivers. With that in mind we determined the feasibility of a college-aged student renting a vehicle for the two month period. We first determined if it is possible to rent a car under the age of 25, and if so what the costs would be.

Finally we reviewed the new Rail Runner project. This is a train that connects Santa Fe and Albuquerque. Besides the airport most people will be flying in to, Albuquerque has many places of interest for future WPI students (City of Santa Fe GIS Mapping).

3.1.4 SPONSORS

The method by which we determined potential sponsors is seemingly scattered in comparison to the other sections of the methodology. The most effective way we found to meet sponsors was to meet with contacts that we were introduced to upon arrival and network meetings from there. They were also found during the Example IQP exploration we took part in. We planned to organize the contacts into three groups.

- Government Contacts
- Native American Contacts
- Water Rights Contacts

3.2 IDENTIFYING POTENTIAL PROJECTS AND SPONSORS

For any project center to be feasible, one of the most important details that a project center must have is extremely simple; project topics and sponsors. This is why it was the main focus of the overall IQP and what most of the time was spent on. This was explored through Example IQPs and interviews.

The Example IQPs had the purpose of proving that there were topics and problems in Santa Fe that future IQPs could tackle, but also took on the separate life of finding potential projects and sponsors.

Example IQPs are small, self-contained subprojects within the larger, broader IQP. They are meant to represent full IQPs, and are to be used as models and examples for future possible IQP subjects at the Santa Fe project center. In addition to help prove that IQPs are feasible in Santa Fe, these Example IQPs are also used to start relationships with future project sponsors and also helped in obtaining research details for the broader IQP logistics requirements. The IQP group was split into two groups and was each assigned an Example IQP in addition to their other IQP duties.

An Example MQP was designed very similarly to the Example IQPs, only it would be a project that would represent a vertical slice of the core aspects of an MQP.

Two Example IQPs were proposed:

- Acequias project
- Interactive Community Platform

One Example MQP was also proposed which is included in Section 3.2.3:

- Santa FE-Venice Puddle Project

3.2.1 EXAMPLE IQP: ACEQUIAS PROJECT

The acequia Example IQP focuses on the general history, background and social underpinnings of acequias. It was broadened to include water and water rights management, as these are relevant subjects in New Mexico due to the lack of water. It was a study that was intended to explore the possibility of potential future projects for WPI students in the area of water resources and water resource management. The completion of this project demonstrated the partial feasibility of a WPI project center in Santa Fe due to potential projects being sourced from connections made through interviews and meetings. The interviews also served the purpose of providing general history of acequias and help progress the project for students who will complete it in the future. Since it is an Example IQP, the project was not fully completed as if it was a normal IQP. However, there were deliverables associated with the project aside from the overall project goals of a sustainable project center. At the completion of the project, a teaching application or mockup was developed utilizing the SimTable, which is essentially a box of sand with a computer hooked up to a projector and an ordinary USB camera. The camera and the projector are mounted above the box of sand. The camera and projector uses a binary scanning

method to scan the different levels of the sand in the sandbox. The data of the heights of the sand are stored in the computer, which can be calculated to represent data sets or functions based on the application the SimTable is being used for. The projector can display a heat map, topographical map, or something similar based on the scan. A video demonstration of the SimTable can be found online at SimTable.com, or electronically in the attached CD.

Thus, the three overall objectives of this Example IQP are as follows:

- Gather information about past and current issues with acequias, water rights, and water rights management.
- Explore the cultural aspect of acequias through community interaction.
- Develop a teaching application by means of the SimTable that deploys acequia and water rights management information to a target audience.

This portion of the chapter will be divided into the following sections:

Overview– details the acequia Example IQP

Scope – illustrates the spatial boundaries our acequia research covered

Additional Contributions – depicts how contributions were made to the overall feasibility study IQP by completing this Example IQP, including ones that were not originally forecast during the PQP stage.

3.2.1.1 Overview

The acequia Example IQP did not cover the entire scope that a normal IQP would cover because it was designed to demonstrate that projects could indeed be completed in Santa Fe, proving that a Santa Fe WPI Project Center is feasible. It does cover all the initial research steps, but doesn't go as far as to complete the project with full-fledged deliverables like a normal project would. The deliverables for the full IQP are obtained through completing Example IQPs such as this one and analyzing Santa Fe, which is why there is only a need to complete part of the IQP.

The scope of this project was very simple, in that it was very heavy in the networking aspect. Almost all of the information that wasn't found on the web was gathered through interviews with local water officials and community members. This interaction and method is one of the only ways to get the personal information and experience we were able to achieve. It also included a trip out to an acequia in La Cienega to participate in an acequia dig for hands-on community interaction. An acequia dig is an annual occurrence that takes place every spring before the growing season. The community works from the early morning to noon to clean the mess of twigs and leaves left by winter when no water flows through the acequia.

The most information was obtained in the numerous face-to-face interviews we were fortunate enough to conduct, but the acequia dig was exactly the type of community interaction that the IQP intends to have the student experience. We made every effort to participate in events such as this in order to explore every available avenue and potential project for students that will complete water oriented projects in the future.

3.2.1.2 Scope

While completing our IQP, we fortunately did not have to travel far outside the city limits to complete it. Most of our interviews were within the city limits and within walking distance of the Santa Fe Complex and our rented apartment. The only times we had to travel outside the city were when we made site visits to La Cienega. Unfortunately, it is not easily accessible by bus, but it is only a short car ride outside of the city. It is less than 20 miles from the Santa Fe Complex, and only takes a maximum of 20 minutes, which is extremely short travel time (especially when compared to some project centers) and easy to arrange transportation for site visits.

Below is a map of the entire area that our project encompassed, including each event we participated in and every interview that was conducted. For scale, the magenta and the yellow pin (Santa Fe Complex and State Engineer's Office, respectively) are approximately 20 miles from the cluster of four pins.

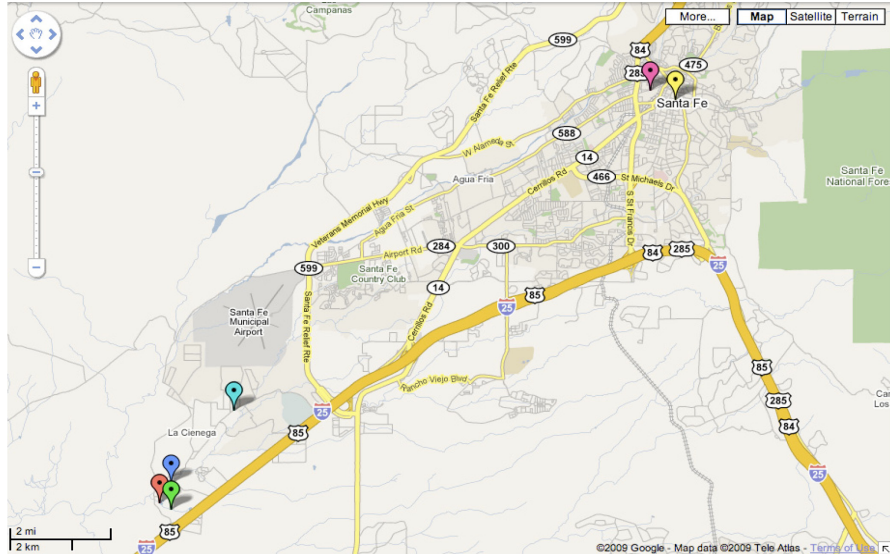
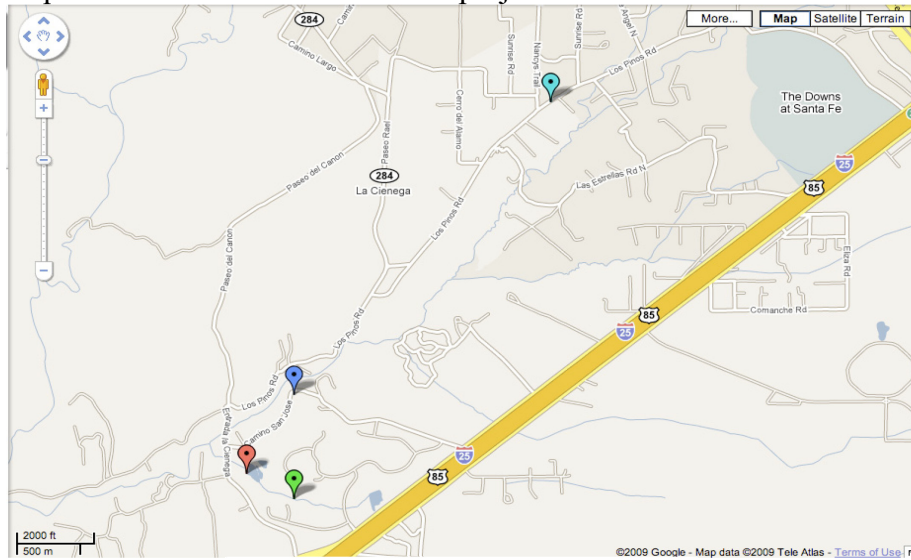


Figure 11: Map of locations of La Cienega Site Visits in relation to the Santa Fe Complex and the State Engineers Office

A zoomed in map of the places in La Cienega that were visited is shown below for greater detail and explanation. A legend is shown below for clarification; each pin will be explained in greater detail in the next section. The green pin was placed directly in the middle of the La Cienega acequia that was focused on for this project.



Acequia Mini-IQP

Illustrates the Spatial Boundaries of our Mini-IQP

0 views - Public

Created on Apr 28 - Updated < 1 minute ago

By [WPI Santa Fe Bootstrap](#)

[Rate this map](#) - [Write a comment](#)





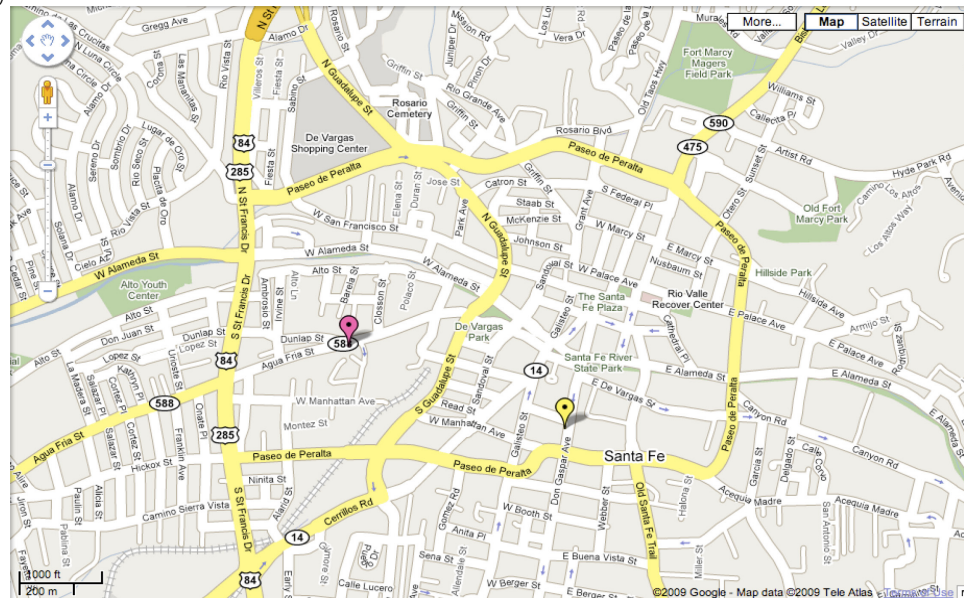

- 
[Gonzales Family Property](#)
 Interview with J.J. Gonzales
- 
[La Cienega Community Center](#)
 Interview with Carl Dickens
- 
[La Cienega Acequia](#)
 Acequia Dig
- 
[El Rancho de Las Golondrinas](#)
 Tour of a Living Museum - with a functioning

Figure 12: La Cienega Site Visits

Yet another map is included below to display locations that our project focused on within Santa Fe's city limits.



Acequia Mini-IQP
 Illustrates the Spatial Boundaries of our Mini-IQP
 0 views - Public
 Created on Apr 28 - Updated < 1 minute ago
 By [WPI Santa Fe Bootstrap](#)
[Rate this map](#) - [Write a comment](#)

 [State Engineer's Office](#)
 Interview with Estevan Lopez, Director, Interstate


 [Santa Fe Complex](#)
 Research Work, Interview with Paul Paryski

Figure 13: Acequia-Based visits in Santa Fe

One of the benefits of this project was that approximately half of the locations we visited were within walking distance. Both state and local governments are within the small circle of land that Paseo de Paralta encloses, which is all extremely walkable.

3.2.1.3 Additional Contributions: Locating Future Project Sources

To prepare for each interview, a script was prepared with known facts as well as questions we felt needed to be asked. Each interview script is posted along with the notes and recording (if the interview could be recorded) of that interview in the attached data files. The interviews were mainly for the purpose of talking to a person that has experienced water rights and water rights management issues and history first hand whether they were caught in the middle of it or because it related to their profession. Each interview was tailored to each person we were interviewing based on his or her expertise.

3.2.2 EXAMPLE IQP: INTERACTIVE COMMUNITY PLATFORM

The city of Santa Fe is looking to continue to be on the cutting edge while serving its inhabitants. The goal of this project was to assist the city of Santa Fe in serving its people by creating an interactive community platform. This was website that gathers multitudes of useful information and applications and puts them in one place for the residents of Santa Fe. This

includes an interactive wiki, links to all of the cities important websites, a walkability application, business listings, as well as many others.

There were two main objectives for the Interactive community Platform

- To create a walkability application.
- To create a comprehensive listing of both registered and unregistered businesses.

3.2.2.1 Walkability Application

The walkability application expanded on walkscore.com (Walkscore). Walkscore had many commendable features, however there was no customizable method to determine if an area is walkable enough to live in.

This application had two objectives.

- To create an interactive formula to determine an area's walkability.
- To create a mock website to display this data.

There were many issues that had to be overcome before an area's walkability could be judged. The website needed to be able to take in all of the user's information in a simple easy to use format. The first thing we needed to determine was the user's starting location. From there we needed to determine the user's preferences for walking. This includes things such as how far the individual can walk, if they are in a wheel chair, if they wish to walk at night, etc. Finally we needed to know how important different types of businesses are to the user.

After the user inputs all of this data it needs to go into a formula to determine the walkability. This formula needed to weigh factors such as distance, types of businesses, number of businesses, and many other factors.

3.2.2.2 Business Listings

The main objective of this project was to help the city of Santa Fe by determining the number of unregistered businesses as well as any trends in non registered businesses. There were a few methods used to determine the number of businesses in the walkable area, however all but one of them were incomplete. The business listing provided by the city of Santa Fe covered all the known and registered businesses, however due to the issues with business registration there were still an unknown number of unregistered businesses not included on the list. Searching the internet yielded a plethora of registered and unregistered businesses, however there were some registered businesses missing from the city list, so there was potential for missing unregistered businesses as well. As such the only method that could completely catalog all the businesses was for us to physically walk the entire area, street by street, and record all the businesses in the area. To do this we employed the City of Santa Fe's GIS maps, and were able to check off every building in the area, and put it into one of the categories listed in the walkability section.

There were not a lot of potential projects and sponsors that were found while completing this Example IQP, due to its general scope. It had a common mission and a few contacts that needed to be communicated with. It was able to catch the attention of the City of Santa Fe. This IQP dealt with a few offices of the City of Santa Fe, all of which are definitely future potential

sponsors of IQPs for WPI students. Unfortunately, finding future project topics was also limited by the scope of this project, and there is definitely one project (or two, if it is split up) possible by making this Example IQP a full IQP; This includes completing the groundwork laid by this Example IQP and making the deliverables the actual working applications themselves instead of just mock-ups.

3.2.3 EXAMPLE MQP: SANTA FE-VENICE PUDDLE PROJECT

Included under the umbrella of additional exploration is the Example MQP that was completed to explore the possibility of a future MQP center in Santa Fe. This was not covered in the objectives but we felt it should be covered, given the fact that the IGSD may have interest in the future once the IQP center is sustainable. Though the Example MQP was by no way near the level of difficulty or complexity of a full MQP, it still had to require more in-depth knowledge of a major, and so skills related to the IMGD major was selected for the example. Since there was no off-campus adviser relating to the IMGD major because the project center did not yet exist, no advisement or school funding was sought. A local sponsor was located, however. Orlando Liebowitz requested an interactive art piece that tied the water-related issues of Santa Fe with that of Venice, Italy. It was concluded that a Venice-themed sculpture would be eventually placed in Santa Fe simultaneously with a Santa Fe-themed sculpture in Venice. Each sculpture would represent the current water activity of the place of its theme, as well as present a method to connect both sculptures.

The topical issues addressed with the piece, the advanced technical requirements of networking the piece between Santa Fe with Venice, as well as the aesthetic requests made it an ideal example of what an MQP would be like if undergone in Santa Fe.

3.3 DEVELOPING A MARKETING STRATEGY

A project center can have the best projects, sponsors, have all the logistics set up, but without student interest a project center is destined to fail. That is why it was imperative that a comprehensive marketing strategy was to be made to establish a strong desire for students to apply to the Santa Fe project center.

To do this we proved that Santa Fe, NM has everything a student looking for an off campus IQP might want. To determine what exactly a WPI student would like in an IQP center we utilized the data from the IGSD student survey. We also used the preferences of the bootstrap team as a basis for student preference. This was considered valid because the bootstrap team consisted of WPI students who had preference of choice and chose Santa Fe as an IQP center. While the bootstrap team was in Santa Fe they also researched cultural aspects and tourist amenities that could aid in attracting future students to Santa Fe. These were recorded in the student's blog. The combination of the data compiled from the New Zealand survey, the blog posts, as well as the reasons for the bootstrap team's choice were all compiled to create a marketing strategy which will be implemented at the next WPI Global fair.

4 RESULTS AND ANALYSIS

During the course of our research we met and fulfilled each of our objectives.

1. Determine the logistics required to run a sustainable project center.
2. Identify potential project topics and sponsors.
3. Develop a marketing strategy to garner the interest of WPI students.

In Section , we review the results of our logistics, where we show that Santa Fe can supply both the Housing and Transportation needs of an IQP Project Center, and state the projected cost expected for each student who would attend a Santa Fe IQP Project Center. Section , entitled *Project Experiments*, gives us both the results of our example projects and the status of the relationships with the potential sponsors. Our Marketing Strategy in Section 4.3 contains an analysis of a recent poll of what students want and do not want in a Project Center. Finally, Section , entitled *Additional Exploration*, details how tasks that didn't fall within our objectives were completed and affected our relationship with potential sponsors of Santa Fe.

4.1 PROJECT CENTER LOGISTICS

As stated in the methodology, the Logistics section is divided into six parts.

- Cost
- Housing
- Transportation

4.1.1 COST

The out of pocket expenses for students wishing to complete their IQP in Santa Fe, NM, like all other project centers can be summarized in six categories.

Category	Santa Fe
Groceries & living expenses	\$350
Eating Out	\$140
Tourist Activities	\$150
Housing	\$1000
Local Transportation	\$100
Round Trip Travel	\$260
Total Cost	\$2000

Figure 14: Table of Cost Categories

The first is the cost of groceries and other items required for living such as soaps, paper towels, toilet paper, disposable dishware and cutlery, etc. As a bootstrap team, arriving on site with an unfurnished apartment we have found that maintaining an abundant supply of all of the above items over the course of 7 weeks cost about \$50 per week, per a person. There were more than enough grocery stores and convenient stores in the city such that finding a good price on anything we needed was not a problem.

The Second category was eating at a restaurant or dinning out. Due to the abundant number and diversity of restaurants within walking distance of the Santa Fe complex, the

bootstrap team dined out quite frequently. As such we were able to both sample a considerable amount of local fare, but also extrapolate the average cost of dining in Santa Fe. Although the different types of restaurants all had different price ranges, the average cost of eating at any given restaurant was roughly \$20 per meal. Thus the cost of eating out seven times over the course of a term would be \$140 per student.

Cost Break Down

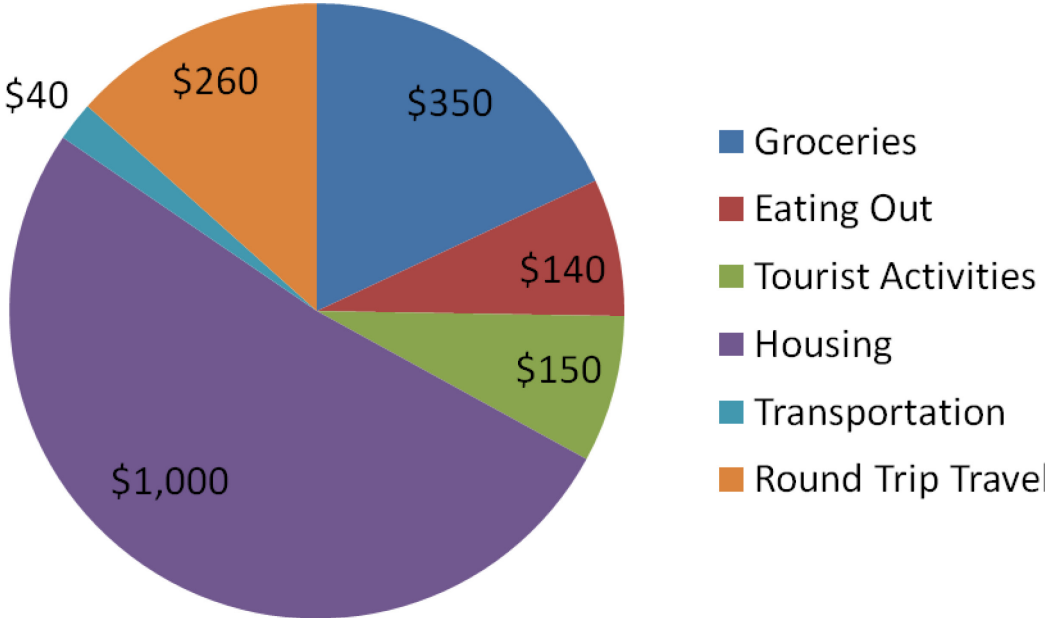


Figure 15: Cost Break Down

The third category would be tourist activities, of which there are plenty in Santa Fe, though most are very inexpensive or free. There are a wide variety of museums and art galleries, as well as Native American Pueblos, and natural hot springs. Many of the activities done by the students were complex sponsored events such as art showings, lectures, and musical events, none of which were out of pocket expenses for the students. As such while avoiding the Casinos, the cost of tourist activities over the course of seven weeks was roughly \$150 per student.

The fourth category is the cost of housing. The bootstrap team lucked out and got a great deal on housing right across the street from the complex, for only \$1900 per month for a 6 bedroom four bathroom apartment. However this location would not be suitable for a fully functioning project center, as such a list of local realtors have been accumulated here in Appendix I. As shown in the housing analysis, the average cost of housing per student per a term would be roughly \$1000.

The fifth category is local transportation around Santa Fe. There are a few options, but the most feasible and cost friendly option is the bus system (Santa Fe Trails). For \$2 a student can purchase an all day pass to ride around anywhere in Santa Fe. As such if a student chose to do this every day the cost of local transportation for the entire term would be \$100 per student.

The sixth and final category is the round trip transportation to Santa Fe, NM. The best method to arrive in Santa Fe is to fly into the Albuquerque airport terminal and from their take

the Rail Runner train (New Mexico Rail Runner Express) to Santa Fe. The cost of a round trip flight from Boston to Albuquerque for the bootstrap team was between \$200 and \$250 dollars per ticket and the Rail Runner ticket was less than \$10 per ticket. The total out of pocket expenses for a student living at the Santa Fe project center for two months would be \$2,000.

4.1.2 HOUSING

We initially sought to reserve a location for housing for students for next year, thus ensuring both housing and an accurate housing cost, but conversations with The Santa Fe Association of Realtors showed that such a thing was impossible. Few realtors will deal that far in advance, and it was stated by the majority of the eight contacted realtor agencies, usually 2 to 3 months prior to stay would be the optimal time to confirm an apartment for ideal choice.

From speaking with the realtor agencies, a list of 45 possible apartments was found. Unfortunately, many of these apartments were unsuitable due to the IGSD's criteria of what determined a suitable apartment, most important of that criteria being that the apartment was furnished. This alone narrowed the list of suitable apartments to 25. Additionally, there were certain apartments whose costs were too high and suggested occupancy size were too low to be considered; apartments with a monthly rent of over \$550 per occupant and less than two occupants were rejected, leaving five possible apartments with an average monthly rent of \$430 and an average suggested size of five people per apartment. Of the appropriate apartments, three had a suggested occupancy as high as six, while one had an apartment as low as two. This gives us an estimation of \$860 for two months rent per student. A detailed analysis as well as data sets is included in Appendix H.

Due to these fluctuations in the market and the inability for anyone to predict them with accuracy we were comfortable with reporting, the estimated cost for two months stay in Santa Fe was rounded to \$1000. This would hopefully account for any future housing fluctuations and safety deposits. The Santa Fe Association of Realtors, other current realtors, and their preferred means of contact have been listed in Appendix G.

The specific apartments used for this data are not guaranteed to be available for WPI students, as they are on the open market. Nevertheless, if 20% of all furnished apartments for rent in Santa Fe meet the standards of the IGSD, locating appropriate housing for future students should not be an issue.

4.1.3 TRANSPORTATION

As stated in the methodology, an intricate part of any project center is the ability for students to be able to get where they need to go. Santa Fe has four main avenues of transportation available to students, walking, bicycling, driving, and riding public transportation. They are described in more detail below.

Santa Fe is an extremely walkable area as shown in the walkability section. Based on the walkability data the average college student should have no difficulty surviving in Santa Fe without any other means of transportation.

There are many car rental agencies within the Santa Fe area. Unfortunately it is impractical for a college aged student to rent a car, as rental agencies either will not rent to students within our age range, or charge exorbitant fees to do so. For example Enterprise Car Rental (Enterprise Car Rental), is located, within walking distance from the complex, at 100 Sandoval St. For a two month rental from April 1st to May 31st Enterprise gave a quote of \$1,392 for someone over the age of 25. This cost was increased \$10 a day for someone under the age of 25, for a total of \$2034. Budget car rental (Budget Car Rental) charges even more for

someone under 25. Their base rate for a 60 day rental is \$1731.81 with a \$27 a day charge for anyone under 25. This nearly doubles the rate adding an extra \$1620.

The city of Santa Fe is extremely bikeable, as shown by the walkability survey. As bikeability is determined in the same method as walkability however the area is increased for bikeability. Buses, trains, and even police cars all have bike racks available. All of these vehicles transport bikes at no additional charge. This allows someone with a bike to easily move around the city both under their own power and with the assistance of vehicles, greatly increasing the distance someone can bike. There are many bike shops within Santa Fe, as seen by a simple google search. Along with biking there are also other human powered means of transportation. There are two skate shops within the Santa Fe area, and can be easily reached by public transportation. However the biggest downfall of both of these means of transportation is that, unless you bring a bike or skateboard with you, they become expensive to purchase. And even if you do purchase a bike or a skateboard it is also expensive to get back home. However you can rent a bike from Mello Velo (Mello Velo Bike Rental). The website, <http://mellowvelo.com>, gives details for daily rentals, which range from \$25-\$60 a day. Long term rental is available, simply give them a call at 1-(505)-982-8986.

Public transportation is readily available in Santa Fe. There are nine bus routes available. Please see Appendix A for a map of all of them as well as individual maps, schedules, and additional information for each of the individual routes (Santa Fe Trails).

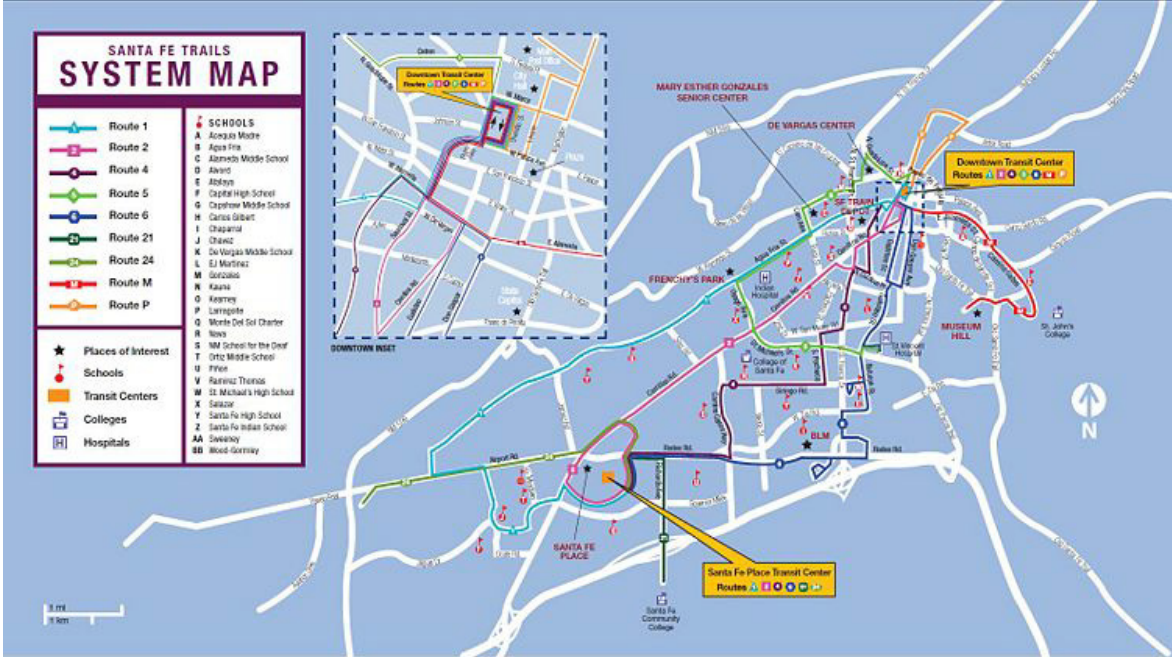


Figure 16: Bus routes of Santa Fe

The buses charge very reasonable rates, two dollars for a day pass, or offer a discounted monthly pass to students for \$17 a month. The exact fare breakdown is shown in Appendix A. This is the cheapest and most reliable means of transportation other than walking. The buses are always on time, clean, and very acceptable for all of the students needs.

The New Mexico Rail Runner Express (Enterprise Car Rental) connects Santa Fe and Albuquerque with high speed rail. The Rail Runner has trains running on both a weekday schedule and a Saturday schedule, both found in Appendix A, however there are currently no trains running on Sunday. The fares vary by distance traveled as well as Saturday vs. weekday

travel, again this information can be found in Appendix A as well as a handy chart on how to calculate the fares. The train is comparable to the commuter rail in Worcester, MA. However the train in New Mexico travels slightly slower and is slightly newer.

If all else fails you can always call a cab, at either Capitol City Cab (Capitol City Cab), 1-(505)-438-0000 or at Las Vegas Cab, 1-(505) 454-1864.

4.2 POTENTIAL PROJECT TOPICS AND SPONSORS

Throughout the course of our research in the experimental Example IQP projects, we were given the chance to sit down with various organizations and groups and discuss the possibility of undertaking actual Interactive Qualifying Projects with WPI. As simply students of WPI, we could not officially represent WPI or the IGSD in terms of any binding agreement with the sponsors. We could, however, inform the sponsors that the possibility of a Santa Fe IQP center was being reviewed, that we as assessors were looking at them as a potential sponsor, and that we were students and could answer any questions that they had about the IQP process.

Overall we were very well received, with a large majority of the sponsors excited by the prospect of “cheap student labor” helping them with their “backburner issues”. Every student participated in the accumulation of sponsors, usually focusing on types of sponsors within the topic of their assigned Example IQP. Other project sponsors that did not share a specific type were also pursued (most notably the Santa Fe Complex and the Albuquerque Arts/Lab). The list of sponsors is included in Appendix A.

4.2.1 PROJECT EXPERIMENTS

As the example projects were carried out, the main goal remained in focus. We were not to just carry out the Example IQP as if it were a full IQP, but rather develop contacts with future project sources and ensure that projects of the same type as the example projects were possible. One major project source for both major project topics were found from each Example IQP, as well as several additional interested project sponsors. The success of the example-MQP, though also not nearly as developed as an actual MQP, also proved that MQPs were possible in Santa Fe.

4.2.1.1 EXAMPLE IQP: ACEQUIAS PROJECT

Water is an extremely valuable resource in New Mexico, and has been a contested resource since outsiders originally settled the area as detailed in the background. Our project focused on rural farming communities such as La Cienega, which has been affected by new housing developments in the recent past. La Cienega has an acequia that irrigates farmland for plants such as alfalfa and beets. Our research included conducting interviews with:

- J.J Gonzales, a local resident of La Cienega and retired water rights lawyer
- Paul Paryski, Member of Gov. Bill Richardson’s Blue Ribbon Task Force on Water
- Carl Dickens, the president of La Cienega Valley Association (LCVA)
- Estevan Lopez, Director, Interstate Stream Commission
- Rolf Schmidt, Manager, Rio Grande Basin, Interstate Stream Commission

- Dave Groenfeldt, Santa Fe Watershed Association

It also included participating in an acequia dig, which happens every spring before the growing season begins to clean out the mess left from winter. Through conducting our interviews and participating in the dig, we were able to realize water rights in New Mexico generally end up dividing into three separate perspectives. They can be generalized into community members, developers, and finally the government.

In the past, disputes in La Cienega have typically occurred between the developers and the existing community, which is when the government usually steps in to mediate. For example, Canyon Ranch had plans to build hundreds of homes within the La Cienega community, which was challenged by the residents of La Cienega. The residents claimed that it would interfere with their acequia and ultimately, their aquifer. The government is taking action by reviewing the Canyon Ranch development plan and taking steps to keep Canyon Ranch off well-supplied water and approve it for county water. There was a hearing scheduled for the 14th of April, 2009 to decide whether Canyon Ranch should be granted county water, but it has been postponed to the 12th of May, 2009. [1] Thus, unfortunately, a result to this settlement will occur after this report is finished and will not make it into the results. This dispute is a perfect example of typical water issues in New Mexico.

As detailed in the background, Indian Pueblos and first nations have the utmost priority when it comes to water rights in New Mexico. Unfortunately for the Pueblos, possessing these rights does not go hand in hand with being free of legislation and legal issues. To exemplify this, there have been sixteen court cases involving Native American water rights. Settlements are usually reached in a normal amount of time, however, there have been some that drag on for years. One in particular, the Aamodt settlement court case, is the longest running court case in United States history. It lasted for approximately 40 years and unfortunately, it is extremely complicated, but deserves attention because it illustrates the intensity of water rights law in New Mexico and more importantly, how water rights disputes are solved.

“The [Aamodt] settlement is complex and is based upon many key concepts which include: The Pueblos would agree to not make priority calls against non-Pueblo users provided the non-Pueblo users agree to one of several options outlined in the settlement agreement. A regional water system (pipeline) would be constructed to deliver treated water to Pueblo and non-Pueblo users in the basin. Connecting to the pipeline is optional. The United States would acquire 2,500 acre-feet of imported water per year in the basin for use by the Pueblos to compensate them for not fully exercising their rights to call priority. Santa Fe County would be responsible for acquiring 750 acre-feet per year of imported water for the benefit of non-Pueblo users, and for a total supply of 1,500 acre-feet per year for use by non-Pueblo water users in the basin.” [2]

This type of legislation is extremely common in New Mexico due to disputes between neighbors, developers, the government or Pueblos. Acequias fall into this as well, because they, at times, can be even more complicated than most water rights issues.

After studying these issues and becoming mostly familiar with water rights law in New Mexico, it was decided that a mock up of a SimTable application would be developed in order to simulate what would actually be completed if this project were to be completed like an IQP.

The interviews also took on a separate life form of finding potential project sponsors and topics, serving the overall goal of the bootstrap IQP. For example, many of our conversations informally spawned into discussions about IQPs completed in the past and types of projects that would satisfy the IQP requirements. This led to potential projects being informally proposed in our meetings, which are detailed in Appendix B.

4.2.1.2 EXAMPLE IQP: INTERACTIVE COMMUNITY PLATFORM

As stated in the methodology the interactive community platform consists of two parts, the walkability application and the comprehensive business listings.

4.2.1.2.1 Walkability Application

This application has two objectives.

1. To create an interactive formula to determine an areas walkability.
2. To create a website design to display this data and gather the users input.

Before we can discuss the final formula that was used some background information is needed. First a hotspot is defined as any business, public facility, or any space that a person may use while living in an area. Below is a list of the categories hotspots can fall into:

- Restaurant
 - Grocery Store
 - Drug Store
 - Hardware Store
 - Clothing Store
- Parks
 - Bars
 - Schools
 - Book Store
 - Doctors Office
 - Government Facilities
- Specialty Shops
 - Convenience Stores
 - Department Stores
 - Liquor Stores
 - Banks/ATM

Each of these categories will then be assigned a rank by the user. The ranking system will consist of five ranks. A ranking of one means that a hotspot must be contained within the walkable area in order for a person without a vehicle to be able to live in that area. A ranking of two is assigned to a hotspot that is used very often. A three is assigned to a business that is convenient to have but not necessary to live. A business with a four ranking would not detract from a person’s wellbeing by not being there, however it is occasionally used. Finally a five is a hotspot not used by the user. An example ranking for a college age student is featured below.

College Student Example Ranking				
1	2	3	4	5
Grocery Stores	Restaurants	Bars	Hardware Stores	Schools
Drug Stores	Clothing Store	Liquor Stores	Parks	

Department Stores	Banks/ ATMs	Doctors Offices	Book Store	
		Convenience Stores	Specialty Shops	
			Government Facilities	

Figure 17: College Student Example Ranking

The final formula is governed by the following guidelines. An area must have at least one hotspot from every category in the one ranking in order for it to be considered walkable. As long as there is at least one hotspot in every rank one category, then every area starts with a base walkscore of 100. For each rank two category that contains no hotspots within the given area the walkscore will go down by 20 points of walkability. For each rank three category that contains no hotspots within the given area the walkscore will go down by 10 points of walkability. For each rank four category that contains at least one hotspot within the given area the walkscore will go up by 5 points of walkability. Type five hotspots do not affect walkability. If an area has over three hotspots of the same category it will gain 2 points of walkability per hotspot over three.

Bus stops and train stations do not directly affect the walkability of an area, however they act as portals. For example if a person determines one mile is walkable and a bus stop is 0.25 miles from the center then each hotspot within 0.75 miles of all the bus stops on that route, and all connecting routes are considered walkable.

After creating the formula, a method for displaying the information needed to be designed. To see a screenshots of the website please see Appendix D. The website needed to gather data on many issues. The first piece of information needed is the users starting location. The next piece of information to be gathered is the distance the individual can walk, as well as special factors including being in a wheelchair and walking at night. The user must then rank the categories of hotspots based on individual preference. This can be seen under Item 1 in Appendix D.

If a user does not wish to rank the categories, they can simply choose a preset such as the college student preset shown under item 2 of Appendix D. Once all of this data is garnered and the walkable area is decided upon a comprehensive list of the “hotspots” within that area must be generated. Generating this list is not an easy endeavor, which will be discussed in the business listings section. This list must then be displayed on a map of the walkable area, and a walkscore must be given. An example map for 633 Agua Fria St. Santa Fe, NM is shown under Item 3 of Appendix D. You will also be able to adjust your preferences from this page as well as seen under Item 4 of Appendix D.

To help solve some of the issues mentioned in the business listings section our website allows the user to add custom locations and share these with the community. This helps keep our website interactive and ensures that all business will be listed on our map. An example of this is shown under Item 5 of Appendix D. As discussed before both street lighting and wheelchair

accessibility can be represented on the map by different colored lines. Items 6 and 7 of Appendix D show streets that are lit at night in red and show streets that are handicap accessible in blue.

This application will continue to grow as more users input more locations. There are many applications besides walkability that can use the same concept. These include bikeability, mapping fire hydrants for local fire departments, business and real estate location planning, etc. This application is intended to simply be a starting point for the city of Santa Fe to continue to expand upon in order to continue to serve its residents.

4.2.2 EXAMPLE MQP: SANTA FE-VENICE PUDDLE PROJECT

As stated in Section 3.2.3, the example MQP was simply an additional exploration into the future aspects of the project center. A project and sponsor was found, and the trial nature of the example-MQP was explained to them. No official funding from the IGSD or the sponsor was sought, and no advisor was located. As a result of this exploration an example-MQP was created, but more importantly contacts with a future project sponsor were firmly established, and evidence that Santa Fe could support MQP level projects was found.

After consulting further with Orlando Liebovitz, a rough design of the pseudo-deliverable was reached. It was concluded that a flatscreen display with a waterproofed surface would be placed at the base of each of the two sculptures and a layer of water would be placed over it, giving it the illusion of the puddle of water being deeper than it actually was. By embedding a camera into the sculpture near where an observer would be looking into the pool, having the camera face the observer, and then transmitting the video feed of the observer looking into the camera to the screen of the other sculpture, a “magic gazing-pool” aesthetic would be created. A live video-feed would create a connection between both sculptures.

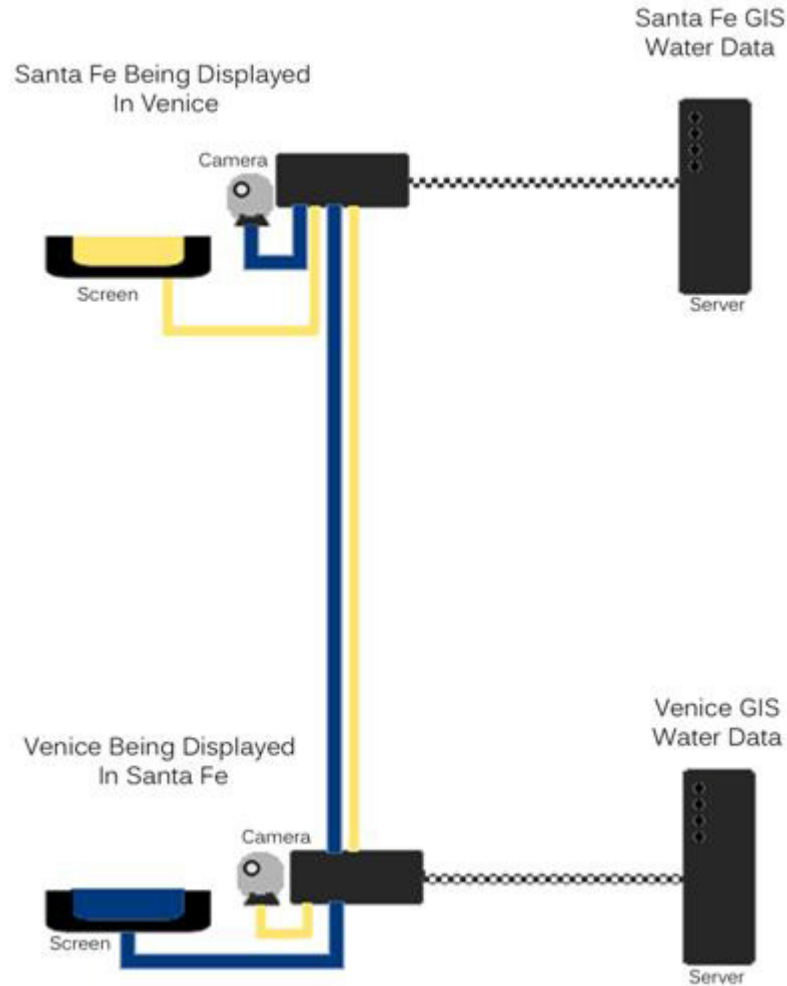


Figure 18: Puddle Project Design Diagram

To represent the different water statuses in each location data would be taken periodically from select Geographic Information System (GIS) (GIS.com The guide to geographic information systems) web-services and then represented by the sculpture. Since the water issue with Santa Fe is scarcity and the water issue with Venice is overabundance, the appropriate GIS data relating to these issues would be accessed. A web-based computer program with Actionscript (Action Script 3.0 Language and Components Reference) and Javascript (Core Javascript 1.5 Reference) implementations would be used to access the most recent GIS water data of both Santa Fe (New Mexico Resource Geographic Information System Program) and Venice (Venice GIS 2.0 Wiki) and thematically represent that data appropriately through the sculptures. A diagram of the final product can be found in Appendix E and in the final presentation in the attached CD. Out of this example project, it is concluded that Santa Fe contains the necessary resources and sponsors for MQP-level assignments.

4.3 MARKETING STRATEGY

In this section we will discuss the key motivators that will have the largest impact on the target audience of the Santa Fe Project Center and will then discuss what methods of marketing that are most likely to garner student interest.

Ensuring the long term viability of the Santa Fe Project Center will be dependent on not only the projects that will be available to future students but on successfully marketing those features that will gain the most attention from potential applicants. Through the data collected from WPI students by the IGSD, the main reasons as to why students chose to go abroad is for the chance to experience a culture unlike their own, while students who did their IQP's on campus sited costs as a primary concern, any successful marketing strategy should bear these facts in mind.

Currently all domestic IQP centers are located in the Northeast where the culture and landscape is very similar to Worcester, removing some of the key motivators for student interest. Santa Fe can and should be marketed as a culturally exotic location considering the interplay of the three local communities that comprise the region. Additionally the dramatic differences of landscape between the Southwestern and the Northeastern United States should be emphasized for those students who want to experience an environment as disparate from WPI's campus as possible without leaving the country

Each year roughly 60% of students choose to remain on campus to complete their IQPs. The reasons for this were summarized in a student poll provided by the IGSD department. (Figure 19)

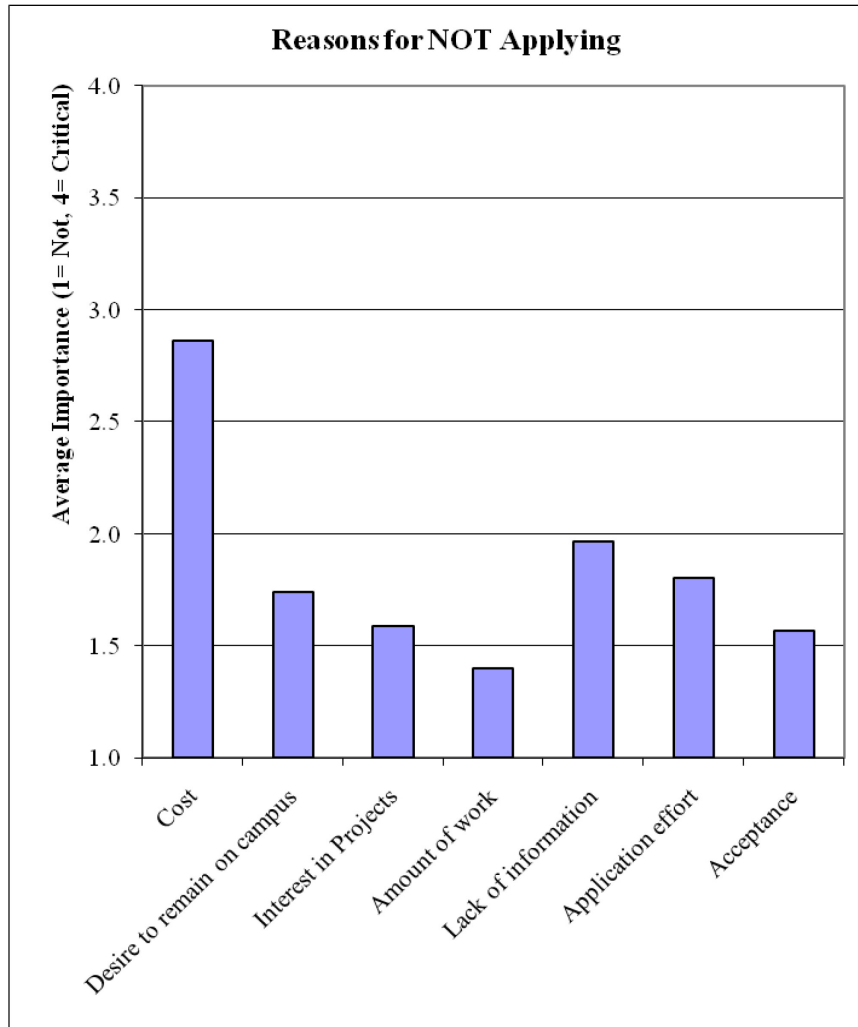


Figure 19: Results of IGSD Student Poll of Reasons for Not Applying to Off-campus Project Centers

The results above clearly show that cost was the largest factor in why students chose not to leave campus. Thus Santa Fe has been proven and will be marketed as the cheapest domestic project center. For roughly \$2000 a term a student can complete an IQP in Santa Fe. This is less expensive than the cost of living in a student dorm for that term at WPI. Not to mention the cost of a meal plan and any activities done in Worcester which would add even more to the cost of an on campus IQP. If students were informed that it would actually be cheaper to complete an IQP in Santa Fe they would be keener to go off campus.

Those students who forewent the cost of traveling also had many reasons as to why they did choose to apply to an off campus IQP center. The reasons for this were also summarized in a student poll provided by the IGSD department (Figure 20).

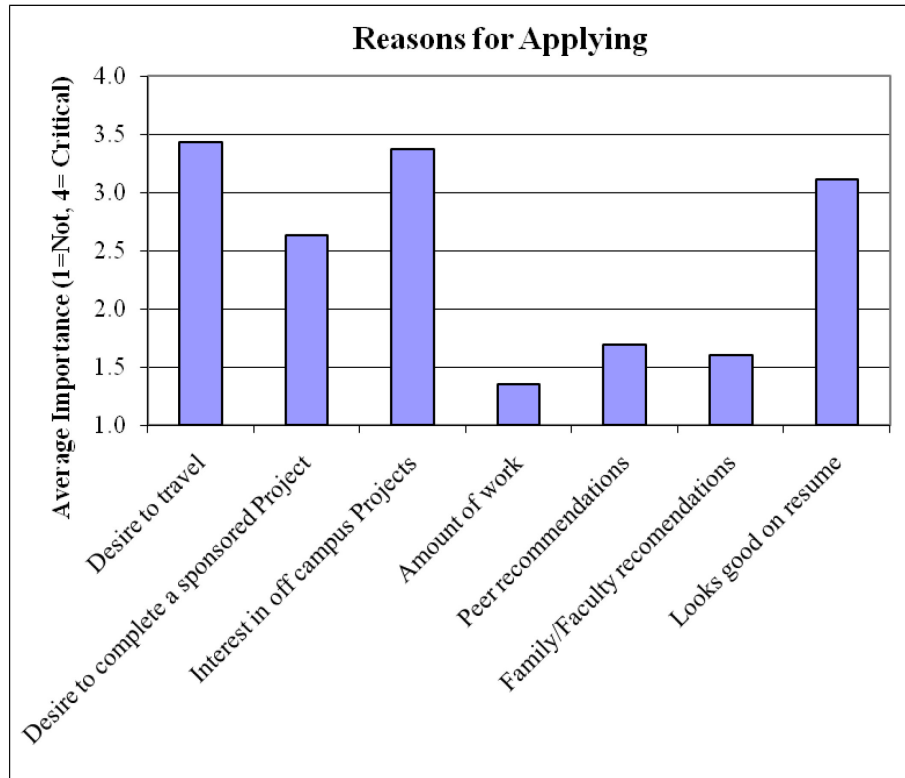


Figure 20: Results of IGSD Student Poll of Reasons for Applying to Off-campus Project Centers

The data in Figure 14 shows that the most influencing factors for students were the desire to travel, the desire to complete an interesting project, the affect it would have on their resume, and the desire to complete a sponsored project.

Considering that the Santa Fe Project Center aims to be both self sufficient and not take away potential student participants from other project centers the methods of advertising must be adapted accordingly. While the IGSD is comfortable with maintaining interest in currently established project centers it is less established in introducing students to the idea of a new project center. One of the options for advertising the Santa Fe Project Center is direct mailings, either via email or through the campus mail system, telling students about the opportunities of the new project center, this method if implemented should most likely be used for, at most, two years.

The method that will most likely have the highest success rate is ensuring the material available at the IGSD's Global Fair is capable of grabbing student's attention. Those materials should include a tri-fold brochure that presents the financial and cultural benefits of working in Santa Fe, linking students to the blog that students kept while they were in Santa Fe, and using any photographs from the first IQP that show Santa Fe in the best light.

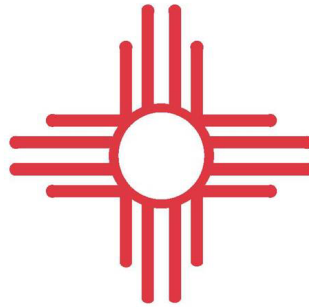
To this end we have created a tri-fold pamphlet detailing the more tourist type attractions of Santa Fe. This is pictured below in Figures 21 and 22.

LOCATION

The Santa Fe project center is a brand new residential program open to students this year. Located in Southwestern United States, Santa Fe displays a unique architecture, history, and culture. Fine food, excellent atmosphere, and diverse entertainment make it an easy place to love. Located near Los Alamos National Laboratory, Santa Fe combines the old and new to create a society steeped in both tradition and innovation. A train ride away from Albuquerque, it is a wonderful place to work and play.



One of the best perks of going to the Santa Fe Project center is the large number of interesting and influential people you will meet. Above is Orlando Leibovitz, a local artist and board member of the Santa Fe Complex.



The zia, state symbol of New Mexico



Our take on the zia, drawn on the sand table inside the Santa Fe Complex.

For more information, check out our wiki at http://sfcomplex.org/adobewiki/index.php?title=WPI:Santa_Fe_Project_Center

Our blog at santafebootstrap.blogspot.com

Or e-mail the advisor at carrera@wpi.edu



WPI: Santa Fe Project Center

The exotic domestic center

Santa Fe, New Mexico

Term – D 2010

Project Opportunities – IQP

Housing – Shared Student Apartments

Director – Professor Fabio Carrera

Preparation – 1/2 unit preparation activity

Application Deadline – September 25, 2009 (before 1:00 PM)

Figure 21: Santa Fe Trifold Marketing Pamphlet (Page 1)



Santa Fe has plenty of fine cuisine, most of which is located within walking distance of the complex. Above is the insignia for the Cowgirl, a well known Barbeque in downtown Santa Fe.

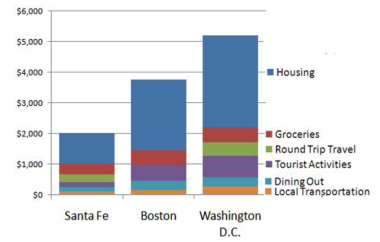


The historic and beautiful pueblos located throughout New Mexico are a short car ride away from Santa Fe, and are a great way to learn about the past.



Santa Fe is located at the foot of the beautiful and scenic Sangre de Cristo mountain range.

Students of the Sante Fe bootstrap team pose for a quick photo op while helping out around the complex.



The cost of going to the Santa Fe Project center, as determined by the Santa Fe bootstrap team, will be significantly lower than that of the other 2 non Worcester domestic centers, as can be seen by the chart above.

PROJECTS

Santa Fe offers an array of projects unavailable in any other project center. Potential Project areas include Native American Affairs, Urban Planning, and Water Resource Management.

Figure 22: Santa Fe Trifold Marking Pamphlet (Page 2)

5 CONCLUSION AND RECCOMENDATIONS

To conclude that Santa Fe would be a location for a successful project center we must verify that it possesses qualities that would instill student interest. Simultaneously we will be concluding that Santa Fe contains all aspects for a sustainable project center, namely suitable logistics, and the presence of potential projects and sponsors.

To develop a marketing strategy to garner the interest of WPI students, we must first be sure to avoid any “Turn-offs” that would make a student completely reject the idea of considering Santa Fe as a project center. From the student poll of reasons why students chose not to apply for an off-campus IQP, the most significant reason above all others was cost.

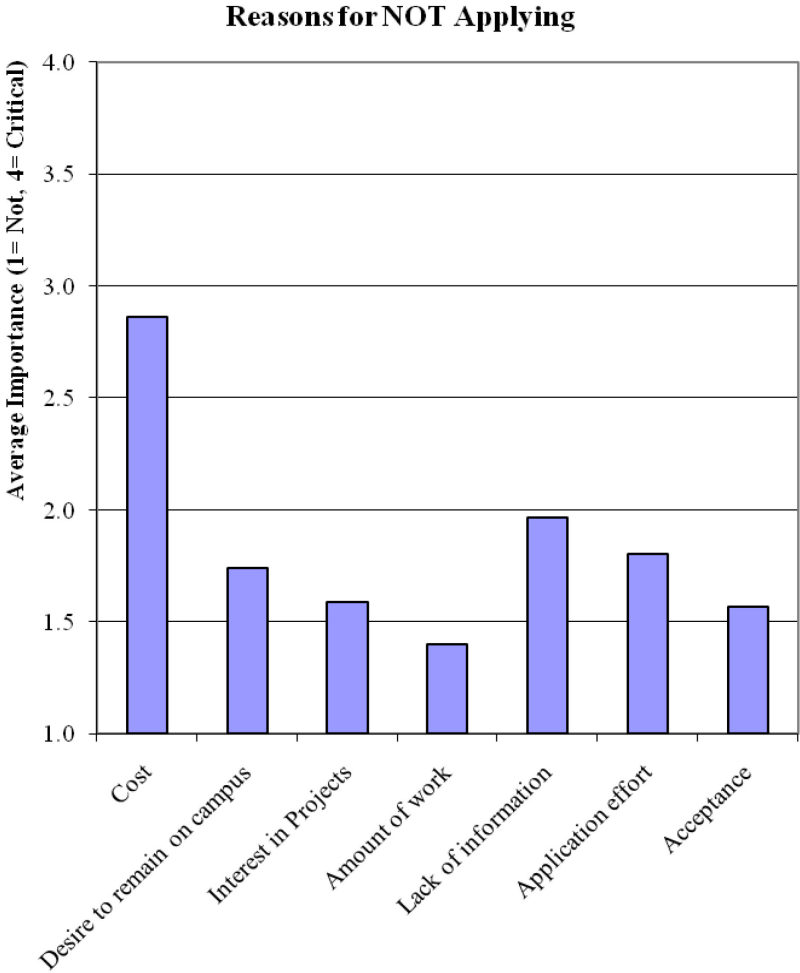


Figure 23: Results of IGSD Student Poll of Reasons for Not Applying to Off-campus Project Centers

The most significant deterrent for students who chose not to go off-campus for their IQP was the high cost of staying off campus for a term. In our cost analysis in Section 4.1.1, we showed that a student in Santa Fe would be estimated to pay an amount of \$2,000 of out of

pocket expenses. In addition to our cost analysis we also compared our Santa Fe expenses with the suggested amounts of the other domestic project centers of Boston and Washington DC, as suggested by the IGSD. Our results were quite positive.

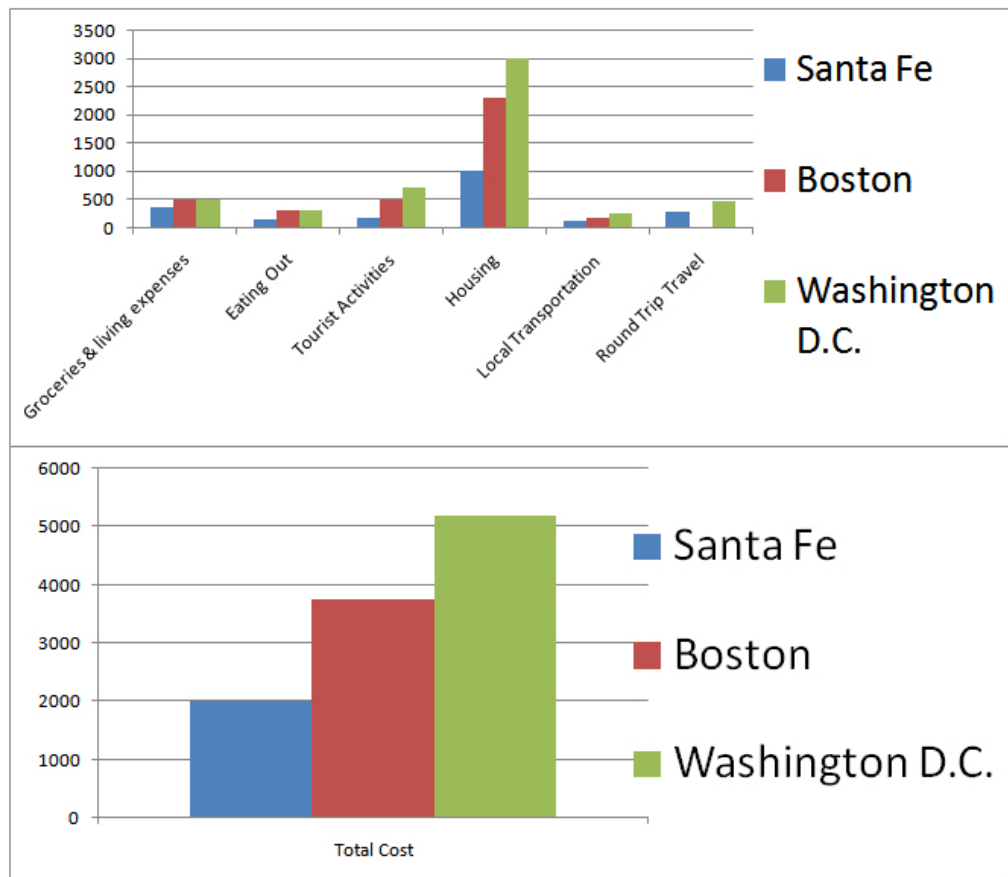


Figure 24: An Itemized and Overall Comparison between Santa Fe and Existing Domestic Project Centers

The projected out-of-pocket expense for a student in Santa Fe was almost half the expenses for a student in the Boston IQP center and almost a third of the expenses of a student taking their IQP in Washington DC.

Category	Santa Fe	Boston	Washington D.C.
Groceries & living expenses	\$350	\$500	\$500
Eating Out	\$140	\$300	\$300
Tourist Activities	\$150	\$500	\$700
Housing	\$1000	\$2300	\$3000
Local Transportation	\$100	\$150	\$250
Round Trip Travel	\$260	\$0	\$450
Total Cost	\$2000	\$3750	\$5200

Figure 25: Table of Domestic Project Center Costs

The Santa Fe was not only less costly overall compared to the other two domestic project centers, but was less costly compared to Boston and Washington DC in every area, with the single exception of Boston's round trip travel, which was zero.

The most significant advantage Santa Fe had over the other domestic project centers was housing cost, which is detailed in Sections 3.1.2 and 4.1.2. As stated in Section , both students and faculty must be supplied fully furnished housing within the vicinity of their project location, and as shown in Section 4.1.2 and in Appendices H and I, suitable housing and realtor options are present for students in Santa Fe.

Transportation, though cheaper in Santa Fe, is by no means less effective. As stated in Section 4.1.3 everything from cabs to bicycles are available for rental, purchase, or use in Santa Fe. Additionally, it is concluded by the walkability study in Section 4.2.1.2 that students may opt to not use any form of transportation at all other than their own two feet and still enjoy a great deal of what Santa Fe has to offer.

It is clearly concluded that a Santa Fe project center would have a much lower cost than the existing domestic project centers. Note that these amounts do not include other site fees, but as the Santa Fe project center will be a domestic project center, the additional fees should be equivalent to the other domestic centers. It is not projected that cost will be a deterrent in students choosing Santa Fe as a project center.

The next measure to be taken after insuring that there was no outstanding negative quality to applying to the project center would be to show that there are unique positive qualities of applying to Santa Fe. From the poll in Section 4.3 regarding students who had chosen to attend an off-campus center for their IQP, the most outlying reasons for applying were the desire to travel, the interest in the offered projects, and the positive addition that an exotic project would have on the student's resume.

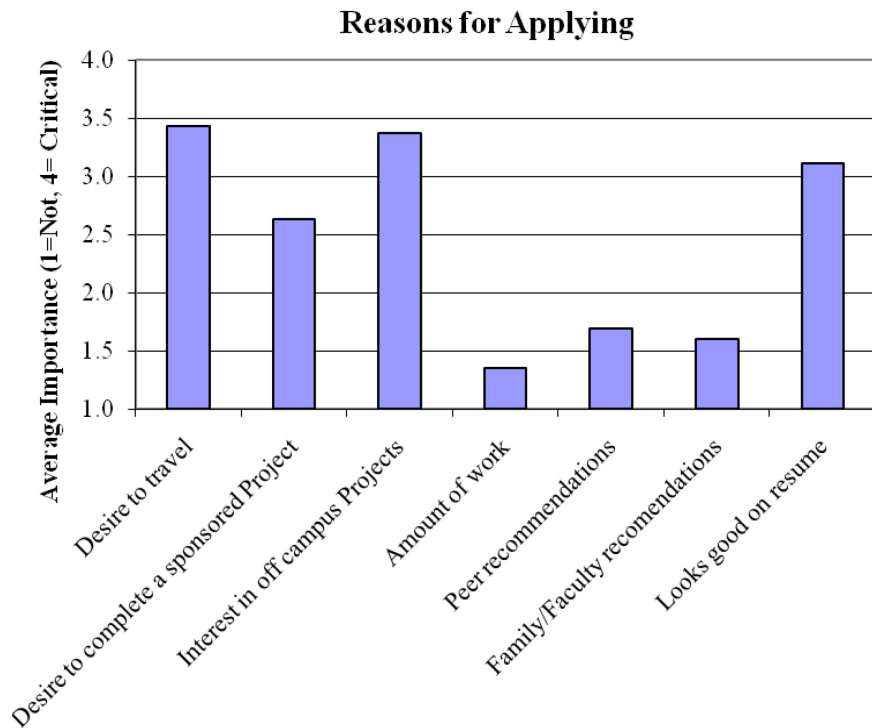


Figure 26: Results of IGSD Student Poll of Reasons for Applying to Off-campus Project Centers

As shown, the second, third and fourth most important factors students polled when choosing an off-campus project center relates to their interest in the projects offered, whether directly or indirectly. Santa Fe offers projects that fall within all of those reasons, in our example Example IQPs, we worked alongside the Santa Fe government in developing a business census (Section 4.2.1.2), we worked in both governmental and rural areas in developing water rights and resource management with the Acequias project (Section 4.2.1.1), and if the Santa Fe project center ever be considered for MQPs, our Example MQP Puddle Project (Section) would provide a great example.

It is easy to conclude that students enjoy interesting projects, and our example projects in Section show that Santa Fe contains many suitable projects for future students. However, it is difficult to state that Santa Fe provides interesting projects without being biased about what an interesting project actually is. Nevertheless, the majors, tastes, and preferences of the group was varied enough to quantify the level of intrigue for a potential project by group consensus, and it was concluded that of the projects found through interviews, all of them were worthy of student interest. In addition, there is precedence in certain types of projects offered in Santa Fe in the Thailand and Venice project centers, both of which are highly popular sites. Like Santa Fe, both Venice and Thailand offer water-related IQP projects, which students have been able to complete and enjoy in the past.

The most important factor for a student is the desire to travel, which implies a place to travel to. Santa Fe can easily be marketed as an interesting place to travel to, the contrast in culture between Santa Fe and the northeast is insurmountable, and would interest any student. To attract future students the bootstrap team has compiled a list of enjoyable restaurants, tourist

activities and events done at the Santa Fe Complex. These can be found in appendices K, L, & M respectively.

Given all of these positives for Santa Fe, when examining where students completed their IQPs last year (2007-2008) it seems extremely plausible for the Santa Fe Project Center to follow, if not exceed its intended growth plan if it is approved. For example, in the pie chart below it is clear that a majority of the classes at WPI complete their projects on campus.

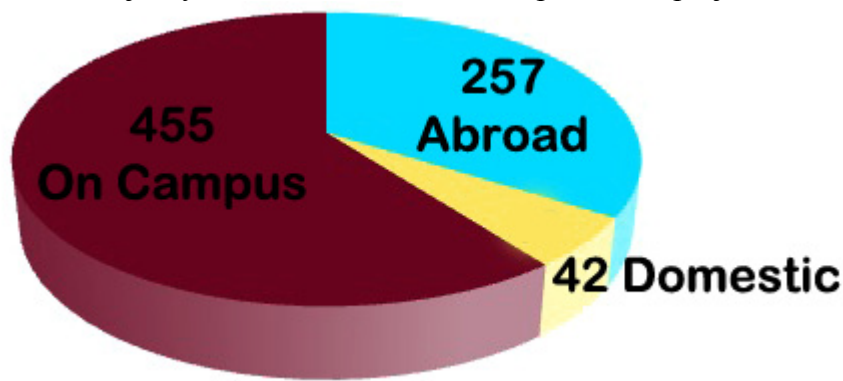


Figure 27: Where Students Completed Their Projects Last Year (2007-2008)

With a new project Center in Santa Fe that has all of the positives described above, it would be extremely possible to tap into the pool of students that intend to complete their projects on campus next year, with a modest goal of 12-15 students. Another pie chart with a projected slice for Santa Fe is shown below.

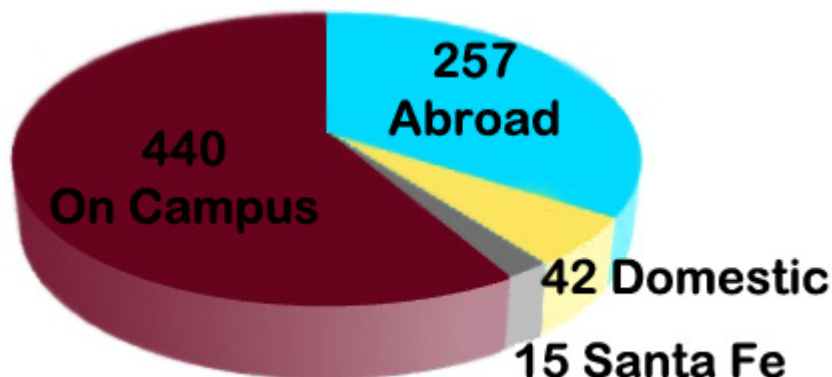


Figure 28: Projected 2009-2010 IQP Project Completion

As shown, the Santa Fe goal for next year is extremely attainable given how easy it is to market Santa Fe, should the project center be approved.

Clearly, the city of Santa Fe contains all aspects that would be required to create a successful project center. It is monetarily feasible for both the students and for WPI, it contains an impressive supply of both interesting projects and interested sponsors, and it supplies a unique and compelling culture that would attract students in addition to its offered projects.

5.1 RECOMMENDATIONS FOR PROJECT CENTER DIRECTORS

We have already begun recruiting for D Term of the 2010 school year, and currently have six more interested students. For recruiting students for the year 2011, the Global Fair should be used, using the information in this report and the attached files to develop the necessary posters and handouts. The center may be desirable to those who have already experienced it, but to new

students such interest may not be present. This report suggests appealing to the practical side of future students by showing that the center is inexpensive as well as exotic. As the center will be very new, tell the incoming students that they will be trailblazers for the new center and that their contributions will be significant and lasting. Always continue to display the technology and creativity of Santa Fe, perhaps even implement an example of the Simtable or of Agent-Based Modeling at the Global Fair to pique interest and stand out. Though the culture of Santa Fe can speak for itself after students arrive in New Mexico, it is the duty of the Santa Fe Project Center Directors to speak for the culture of Santa Fe here in Worcester.

With these steps utilized we plan that by the year 2012 there should be a full project center able to sustain projects for 24 students, the maximum amount for an off-campus project center.

Our results have led us to conclude that a project center in Santa Fe is feasible and suggested. Through our research and our experiences with the Example IQPs, relationships between WPI and the potential project sponsors have been well established. Now actions on behalf of WPI must take place. Contacting all of the located sponsors and ensuring projects for next year's students must begin, as well as contacting realtors from the compiled list and locating housing for the interested students. Such a challenge should be routine for the IGSD, and the students of this report have every confidence that the information analyzed in this report and included in the appendices will supply the IGSD with everything they need.

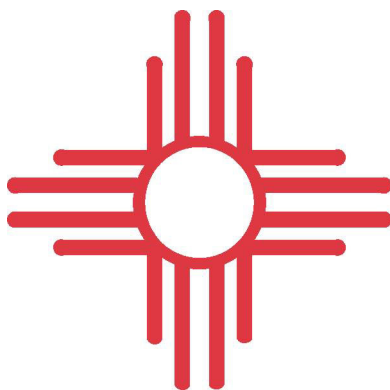
5.2 RECOMMENDATIONS FOR STUDENTS

Students who have applied or are considering the Santa Fe project center are suggested to consider using other modes of transportation. Though walking is certainly a viable option, much more of the city can be experienced with a bike or on a bus route. The train going into Albuquerque also creates additional opportunities, and since bikes may be taken on the train there would be little need for additional transportation.

Students who are not considering the Santa Fe project center are recommended to reconsider their decision. Given the relatively low cost compared to other domestic project centers, the exotic culture of the southwest, and the array of projects offered there, the Santa Fe project center is ensured to be an inexpensive, enjoyable, and fulfilling project center for any student.

5.3 FUTURE PROJECTS

As the Santa Fe project center continues to grow and become more visible in the Santa Fe community, new organizations and projects will present themselves. From these projects, more visibility and prestige for the project center – and for WPI - will be generated. Much of this is dependent on the success of not only this report, but the projects that will result from it. We have taken great care in selecting projects and project topics that are not only unique to Santa Fe, but also are individually impacting. The result of each project will create a word of mouth system for both project sponsors and students alike. Sponsors of completed projects in Santa Fe will tell other potential sponsors of the impact of the projects and students back in Worcester will tell incoming classes that the Santa Fe project center contains interesting and enjoyable projects. Thus a sturdy base of both interested students and interesting projects will develop and remain for years to come.



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7 APPENDICES

7.1 APPENDIX A: List of Potential Project Contacts

Organization: Santa Fe Complex

633 Agua Fria St.

Santa Fe, NM 87501

Contact: Steve Guerin

The Santa Fe Complex was our initial contact point in Santa Fe. It is a space which facilitates the interactions of art, science, and technology. The space is open to events that the complex feels are worthwhile and will further their goals of artistic and technical collaboration.

Taken from the complex's website:

“sfComplex's mission is to create a collaborative workspace that fosters applied complexity science through interdisciplinary education, outreach, and development of innovative technologies that address real-world problems, enable social cooperation and create economic opportunities.” (Santa Fe Complex)

The reason that we first got in contact with the complex was due to a chance meeting between Steve Guerin, complex president, and our advisor, Fabio Carrera. Fabio could tell from Steve's description that the complex is a great place to be associated with and that WPI should establish contact as early as possible.

A lot of the complex's work deals with complexity study and emergent behavior. To this end, there is a great deal of modeling and simulations that go on, using a variety of programming languages. Every Wednesday there is a large meeting of about 20 or so artists, as well as technical presentations as outlined in the marketing strategy section of our report.

Needless to say, the complex would be a great source of many different kinds of projects. With such a wide collection of different mindsets and knowledge bases, it would be much more surprising if we were unable to find projects to do.

Organization: ARTSlab/UNM

131 Pine Street NE

Albuquerque, NM 87106

According to the people of the complex, ARTSlab is their sister organization in the nearby city of Albuquerque. Their mission is quite similar to that of the complex.

Taken from the ARTSlab Website:

“The ARTS Lab is an interdisciplinary center for developing creative relationships connecting Art, Science, Business and Technology in New Mexico's unique environment. The ARTS Lab vision is to be a key catalyst for education and research that will grow and sustain an advanced media industry in New Mexico.” (ARTS Lab)

Upon first arrival to ARTSlab, it is none too overwhelming. There is no sign; the building that ARTSlab is housed in is beyond deceiving. It has the appearance of a rundown furniture warehouse. Then, once you open the door the illusion is dispelled and you can see that, just like the complex, ARTSlab is a hotbed of artistic and technological development.

On the premises is a planetarium dome, a Vicon Motion Capture system, 30' x 40' Green Screen Studio, AV production suite, among other impressive things. Any AV person would be blown

away.

Also housed in the same building is the UNM Center for High Performance Computing with 7 clusters totaling in 176 computing nodes.

The way in which we WPI students got into contact with ARTSlab was through an impromptu visit to their facilities. They said that they would be quite interested in working with us in the future and to make sure we keep in contact with them.

The reason we feel that ARTSlab would be a good source of projects is largely the same reason that we feel like the complex is a good source. The gathering of intellectuals presented here is too great an opportunity to pass up.

Organization: Bureau of Indian Affairs Northern Pueblos Agency

1/2 a mile north of OhKay Casino

P.O. Box 4269, Fairview Station

Espanola, NM 87533

P: 505/753-1400

F: 505/753-1404

<http://www.doi.gov/bia/>

Upon making contact with the Bureau of Indian affairs, we determined that the best person for us to talk to would probably be the person in charge of irrigation projects, considering a major theme of our project thus far had been water. The receptionist put us into contact with Carlos Salazar in the agriculture division of the BIA.

We met with Mr. Salazar and he proved to be a very useful resource, putting us into contact with the Eight Northern Indian Pueblos Council. He also has many projects of his own which should prove to be good examples of the kind of work that can be done within the pueblos without jeopardizing the integrity of their tribal lands.

Most of his projects obviously include irrigation, but he also put us into contact with one of his colleagues who believes that there are projects to be done in GIS mapping investigating the patterns of noxious weeds within tribal lands. There is also potential for uses of this project on the sand table using some growth models to estimate the effects of what would happen with varying degrees of weed control.

Organization: Eight Northern Indian Pueblos Council Inc. (ENIPC)

Organization Phone: (505) 747-1593

Website: <http://www.enipc.org/>

Primary Contact: Michael G. Miller Executive Director

Contact Email: mmiller@enipc.org

Contact Phone: 505-747-1593

The ENIPC was founded in the 1960's to act as an intermediary managing organization to serve the Eight Northern Pueblos of New Mexico. By acting on behalf of the individual Pueblo Governments as a singular organization the ENIPC allows the Northern Pueblos to compete more effectively for both Federal and State funds.

The ENIPC sees itself as a cradle to seniors' organization, making sure that from birth until after retirement members of the tribal community are taken care of. With 140 employees the ENIPC has a range of services offered ranging from education to environmental planning of greatest general concern are those projects that involve water management. With monthly meetings with the Governors of the Northern Pueblos, the ENIPC is powerfully positioned to be one of the best

ways to network with the local tribal communities.

The ENIPC has a well established youth outreach program based out of Albuquerque. The students in their program are taught about environmental issues, and sustainable practices. This is a project that we feel could be easily turned into an IQP, that is, helping to develop their curriculum. This would also give us an opportunity to work with native youth, which is something that is always sought after when investigating project opportunities.

Other Notes:

Attached in the appendices is a copy the packet that was sent to Mr. Miller to be given to the governors of the Eight Northern Pueblos during their monthly meeting on May 19, 2009.

The Primary Interest Project from the IAIA Archive Project, "Historic Preservation Through Digitization and Application of Metadata by Means Crowdsourcing", would benefit tremendously from support by the ENIPC and may help avoid the potential of cultural friction between pueblos and the IAIA.

Organization: Institute of American Indian Arts (IAIA)

Organization Phone: 505-424-2300

Website: <http://www.iaia.edu/college/>

Primary Contact: Ryan Flahive, Chief Archivist

Email: rflahive@iaia.edu

Contact Phone: 505-424-2392

The Institute of American Indian Arts was established in 1962 to serve as a place for Native American Artists to explore more contemporary artistic forms. After making contact with the IAIA's archivist, Ryan Flahive, a list of projects was presented. With a deeper understanding of how our institutions might benefit each other a second follow up meeting was arranged with the hopes of having our project advisor Prof Fabio Carrera and Mr. Flahive sit down and discuss project ideas.

Other Notes:

There is the possibility of doing sufficiencies at the IAIA campus as it is an accredited college Example images of what will serve as the backbone of the preservation project will be available on the University of New Mexico website within the next few months, around July of 2009.

Potential Funders of the Project Could Include:

Federal Grants to the Institute of American Indian Art (IAIA)

Eight Northern Indian Pueblo Council (ENIPC)

Philanthropic arm of the Casinos

Possible Collaborators:

Steve Smith of Los Alamos Visual Analysis (LAVA)

Eight Northern Indian Pueblo Council Inc (ENIPC)

The Santa Fe Complex

Worcester Polytechnic Institute (WPI)

Institute of American Indian Art (IAIA)

Organization: La Cienega Valley Association

<http://www.lacienegavalley.org/> Contact Carl Dickens

The La Cienega Valley Association (LCVA) oversees the issues of two communities, La Cienega and La Cieneguilla.

Taken from The LCVA Website:

"The history of the La Cienega Valley and its the traditional historic communities of La Cienega and La Cieneguilla date back thousands of years. As the name cienega (Spanish for marsh) implies, the La Cienega Valley contains marshlands formed by natural springs that have attracted passersby and settlers since well before the time of Christ. Recently, an archeological survey was conducted on approximately 250 acres of land comprising El Rancho de Las Golondrinas in the heart of La Cienega. This survey yielded 51 archaeological sites ranging from camp sites of the Archaic Period five thousand years ago to ruins of an early 20th century school house. This high level of archeological site density is indicative of adjacent lands up and down the valley, which leads us to believe that our valley has more concentrations of historic occupation than any other area in the Santa Fe vicinity." (La Cienega Valley Association)

Our interview was with Carl Dickens, the President of The LCVA who works with the community to come up with future plans for water use, land use, future development, etc. This interview was very beneficial to the forward motion of establishing a WPI Santa Fe Project Center. He was very interested in the community outreach aspect of the Interactive Qualifying Project and expressed interest in working with WPI students in the future. Since the LCVA is a community organization, it would not be difficult to integrate an IQP into the work that the LCVA does. Past projects at WPI Project Centers have dealt with water resource issues such as irrigation and water monitoring. This type of project would benefit LCVA and wouldn't face many obstacles in its implementation, given WPI's history of irrigation projects.

Organization: Railyard Stewards

Organization Phone: 505-982-6975

Website: www.railyardpark.org/

Primary Contact: Eliza Kretzmann, Executive Director

Email: railyardstewards@gmail.com

A recently formed non-profit in the Santa Fe area, Railyard Stewards has made its mission to improve the sense of community ownership towards the many community resources around Santa Fe. The primary are of concern of the Railyard Stewards is the Railyard Park and Plaza area, which is less than a five minute walk from the Santa Fe Complex.

Potential Projects Include

- Helping to develop a Green Collar Training Network and resource guide
- Work on the Railyard Park area itself
- The creation of educational resources to improve the usability of the park and bring awareness to local community issues
- Designing playground equipment that have secondary uses, including turning play into helping to maintain the plants in the park
- Taking advantage of the digital water meters in the Railyard Park and finding some practical/artistic installation that can be derived from said data this could tie into the project done by the Bootstrap team's mini MQP Project referred to as the puddle project

Student Recommendation: Due to the newness of the Railyard Stewards organization and what will become the Santa Fe Project Center, we would recommend that contact be maintained. Most likely they will be able to recommend projects this fall (academic year 2009-2010) and in be able to truly be mutually beneficial collaborators of the project center starting in the 2010-2011 academic year.

Organization: Santa Fe Institute

1399 Hyde Park Road

Santa Fe, NM 87501 Contact Béla Nagy [<http://www.santafe.edu/~bn/> Béla's Website]

The Santa Fe Institute, which interestingly enough was founded by a graduate of WPI, is a world-renowned beacon for theoretical and research sciences.

Taken from the SFI website:

“The Santa Fe Institute is a private, not-for-profit, independent research and education center founded in 1984, for multidisciplinary collaborations in the physical, biological, computational, and social sciences. Understanding of complex adaptive systems is critical to addressing key environmental, technological, biological, economic, and political challenges.” (Santa Fe Institute)

Our visit to SFI was to meet with Béla Nagy who is working with JP Gonzales from the complex. Béla explained to us the work he is doing generating statistical models. He also showed us his new interpretation of how to represent probabilities. After meeting with Béla we stuck around to attend a couple of the lectures that were going on that day.

While the Santa Fe Institute might be better suited to MQPs, we feel as though the extra effort to convert some of their projects into IQPs would be well worth it. If for nothing else to have WPI more closely associated with the institution. The projects that could arise from the institute could be from most any field, particularly studies of complexity and emergence, as well as formulating models for future studies to build from.

Organization: Santa Fe Watershed Association

1413 Second Street, Suite 3

Santa Fe, New Mexico 87505

(505)-820-1696

Contact: Dave Groenfeldt

<http://www.santafewatershed.org>

The Santa Fe Watershed Association was founded with the intention of convincing the local government to open up the Santa Fe Watershed for public viewing and balancing drinking water demands with the desire by many residents to have a flowing Santa Fe River. It is currently dry, due to the dams that hold back the water to store in the reservoirs for Santa Fe City drinking water.

Taken from The Santa Fe Watershed website:

“The Santa Fe Watershed Association was established in 1999 in response to the danger of catastrophic fire in our overgrown upper watershed, above the City drinking supply reservoirs. Management of the forests that safeguard the reservoirs has been an important theme for the Watershed Association, but in the past few years we have given new attention to the middle and lower stretches of the river. In particular, we are advocating restoration of consistent flow to the river to support vegetation and wildlife habitat, while recharging the groundwater. We are striving to create a sense of responsibility and common interest among all residents of the watershed.” (Santa Fe Water Shed Association)

Other Notes:

The meeting we had was with David Groenfeldt, who was very interested in future projects with

WPI students involving the watershed. There were no specific projects discussed. However, there is ample potential given that they are involved in surveying and hydrologics.

Organization: State Engineer's Office (Interstate Stream Commission)

Santa Fe, NM 87501

(505) 827-7843

<http://www.ose.state.nm.us/>

We were also fortunate enough to meet with a branch of the State Engineer's Office, The Interstate Stream Commission. The Interstate Stream Commission oversees New Mexican water systems, including interstate water networks.

Taken from the ISC's website:

"The Interstate Stream Commission has broad powers to investigate, protect, conserve, and develop New Mexico's waters including both interstate and intrastate stream systems. The eight unsalaried members of the Commission are appointed by the Governor. The ninth member is the State Engineer who under state law is the secretary of the Commission. The Interstate Stream Commission Director serves as the deputy state engineer. The Commission's authority under state law includes negotiating with other states to settle interstate stream controversies. New Mexico is a party to eight interstate stream basins. To ensure basin compliance, Interstate Stream Commission staff analyze, review, and implement projects in New Mexico and analyze streamflow, reservoir, and other data on the stream systems." (Interstate Stream Commission)

Our meeting was with the Professional Engineer Estevan Lopez, the Director of the Interstate Stream Commission. Also in attendance was Rolf Schmidt, who manages the Rio Grand Basin portion of New Mexico that the ISC also oversees. The work they do involves traveling to the Santa Fe Watershed, Santa Fe River, and many other bodies of water in New Mexico to survey the area.

Organization: Zia Pueblo

Organization Phone: 505-867-3304

Website: http://www.zia.com/home/zia_info.html

Primary Contact: Peter Pino

Email: tammylpino@yahoo.com

Contact Phone: 505-867-3304-ext 220

Zia Pueblo has been a tribal center of the Zia people for more than six centuries. Off of the beaten path it offers a look at America that few bother to investigate. Zia Pueblo has a rich tribal community where languages such as Keresan (the traditional language of Zia), Spanish, Navajo and English are all spoken.

Potential Project

One of the major challenges facing members of the Zia Pueblo and other local tribal communities is the need to have enough water to maintain their cattle herds. Currently most livestock watering systems are reliant solely on wind power to make sure that enough water gets to where cattle can get access. While a fairly robust technology wind power is unfortunately rather intermittent. Whether or not the wind will blow is something that many farmers cannot afford to be worried about. One solution that is being considered by the Governor's Office of Zia Pueblo, is to create a hybrid water pump system that would use both wind and solar power to maintain efficacy. Students would experience a culture that is unfamiliar to them and grapple

with a challenge that has far reaching implications into how communities in New Mexico and other arid climates deal with not only water but do so with a grid independent technology.

Student Recommendation:

Our phone conversations with Peter Pino showed us that the members of Zia Pueblo were more than willing to work on the individual details required to make this project a feasible. The project from the onset has the benefits of being both concerned with energy and water; on a deeper layer it offers students an experience that will be truly different from any of the potential projects that the Bootstrap team has had the pleasure of reviewing. If it is the goal of WPI to work with members of the South Western Tribal Communities on a long term established basis, working with Zia Pueblo would be one of the most effective ways to build a line of communication between communities.

7.2 APPENDIX B: List of Potential Projects

Organization: ARTSlab/UNM

Project Interests: Dome Projections and Presentations

Organization: Department of the State Engineer (Interstate Stream Division)

Project Interests: Water Resource Management, Hydrologic Surveying

Organization: Institute of American Indian Arts (IAIA)

Project: Historic Preservation Through Digitization and Application of Metadata by Means of Crowdsourcing

With an unprecedented collection of videos, photographs, and stereographic images from the 1950's and 1960's the IAIA's archive has the potential to preserve cultural memories that might otherwise be lost to history. After an initial rough image identification process, most likely to occur during the preparatory period of C term 2010, the photographs would be organized, as much as possible, to where the photographs were taken and who might be inside these images. During the actual period of the IQP in D term of 2010 students would spend part of their time working on a way to take the images out to the various pueblos and have as much of the community as possible collaborate on identifying distinguishing characteristics of the video, stereographs, or photographs. It would be recommended to see if it would be at all possible to have students from IAIA work with WPI students to improve the projects capabilities. Those who have memories associated the materials, the students would be preserving, could share stories and recollections to be added to the Meta data of the images. By working with students from the IAIA campus Ideally once the materials in the archives had accumulated as much data as reasonably possible, either the initial group of students, or subsequent waves of students could help with the design and implementation of cultural exhibits specifically tailored to the needs of the pueblo whose culture is being presented.

The benefits of a project like this are it would help rebuild cultural divides that have existed between the local Native American communities, the IAIA, and the larger Santa Fe community, additionally the ability help create an interactive way to experience cultural history would allow for much stronger connections to the past to be formed.

-Developing a process to decide the priorities of what in an organizations archive should be digitized and what should be left for a later date.

Student Recommendation: The potential of this project to create a positive long term community image appeared to be a high probability considering the dynamics of the IAIA, and other potential project participants.

Organization: La Cienega Valley Association

Project Interests: Water resource issues such as irrigation and water monitoring.

Organization: Railyard Stewards

Project Interests:

-Helping to develop a Green Collar Training Network and resource guide

-The creation of educational resources to improve the usability of the park and bring awareness

to local community issues

-Designing playground equipment that have secondary uses, including turning play into helping to maintain the plants in the park

Organization: Santa Fe Government

Project Interests: Urban Development, Business Surveying, Economic Growth

Organization: Santa Fe Watershed Association

Project Interests: The meeting we had was with David Groenfeldt, who was very interested in future projects with WPI students involving the watershed. There were no specific projects discussed. However, there is ample potential given that they are involved in surveying and hydrologics.

7.3 APPENDIX C: mini-Walkability Mock-Up

Item 1

Welcome to Walkability.com Please fill out the information below to get a customized map.

1=Necessity 2=Used Weekly 3=Convenient but nonessential 4= Rarely used 5=Not used

Location Categories

- Restaurant
- Grocery Store
- Drug Store
- Hardware Store
- Clothing Store
- Parks
- Bars
- Schools
- Book Store
- Specialty Shops
- Convenience Stores
- Department Stores
- Liquor Stores
- Banks/ATM's
- Doctors Office
- Government Facilities

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

How far can you walk?
 Miles

Do you require a wheelchair?

Do you plan to walk at night?

Find a Business (optional) [?](#) [?](#)
e.g. Fairfield Inn or Hotel

Address or Intersection

City State ZIP Code

[Use Copy & Paste Form](#)

Or choose a preset from the options below

Family	Retired	Under 16
High school	Grandparent	College

Item 2

Welcome to Walkability.com Please fill out the information below to get a customized map.

1=Necessity 2=Used Weekly 3=Convenient but nonessential 4= Rarely used 5=Not used

Location Categories

· Restaurant	1	2	3	4	5
· Grocery Store	1	2	3	4	5
· Drug Store	1	2	3	4	5
· Hardware Store	1	2	3	4	5
· Clothing Store	1	2	3	4	5
· Parks	1	2	3	4	5
· Bars	1	2	3	4	5
· Schools	1	2	3	4	5
· Book Store	1	2	3	4	5
· Specialty Shops	1	2	3	4	5
· Convenience Stores	1	2	3	4	5
· Department Stores	1	2	3	4	5
· Liquor Stores	1	2	3	4	5
· Banks/ATM's	1	2	3	4	5
· Doctors Office	1	2	3	4	5
· Government Facilities	1	2	3	4	5

How far can you walk?
 Miles

Do you require a wheelchair?

Do you plan to walk at night?

Find a Business (optional) [?](#)
e.g. Fairfield Inn or Hotel

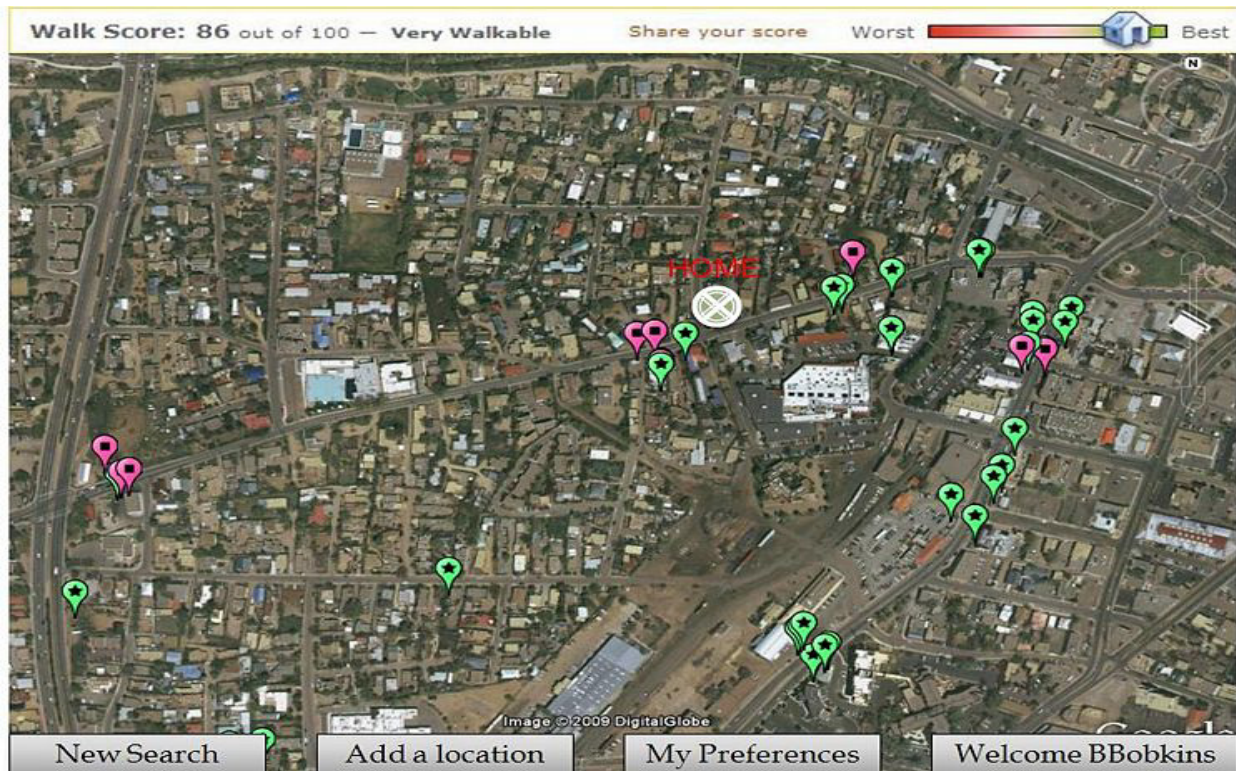
Address or Intersection

City State ZIP Code


Or choose a preset from the options below

<input type="button" value="Family"/>	<input type="button" value="Retired"/>	<input type="button" value="Under 16"/>
<input type="button" value="High school"/>	<input type="button" value="Grandparent"/>	<input type="button" value="College"/>
		<input type="button" value="Login/Register"/>

Item 3



Item 4

Walk Score: 86 out of 100 — Very Walkable Share your score Worst  Best



HOME

How far can you walk?
 Miles

Do you require a wheelchair?

Do you plan to walk at night?

Item 5

Walk Score: 86 out of 100 — Very Walkable Share your score Worst Best

Please Describe the location
Santa Fe Complex

Category Public?


New Search Add a location My Preferences Welcome BBobkins


Item 6

Walk Score: 46 out of 100 — Car-Dependent Share your score Worst Best

New Search Add a location My Preferences Welcome BBobkins

Item 7

Walk Score: 69 out of 100 — Somewhat Walkable [Share your score](#) Worst  Best



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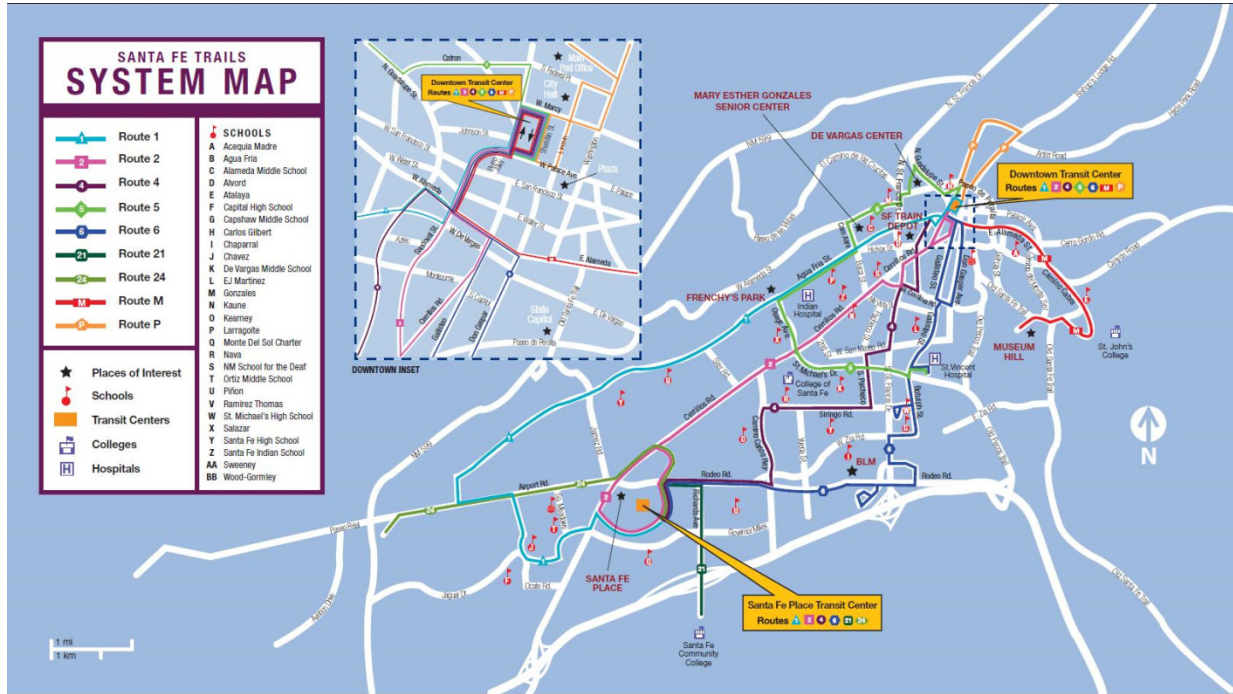
New Search Add a location My Preferences Welcome BBobkins

7.4 APPENDIX D: mini-iqp Acequia Mock-Up

7.5 APPENDIX E: mini-MQP Puddle project mock-up

7.6 APPENDIX F:TRANSPORTATION

Bus Routes of Santa Fe



Route 1

ROUTE 1 - AGUA FRIA													
WEEKDAY OUTBOUND							WEEKDAY INBOUND						
Downtown Transit Center 7	Agua Fria/Alire 6	Agua Fria/Osage 5	Agua Fria/Siler 4	Agua Fria/Jemez 3	Airport/San Felipe 2	Santa Fe Place 1	Santa Fe Place 1	Airport/San Felipe 2	Agua Fria/Jemez 3	Agua Fria/Siler 4	Agua Fria/Osage 5	Agua Fria/Alire 6	Downtown Transit Center 7
-	-	-	-	-	-	-	6:05a	6:19a	6:22a	6:29a	6:32a	6:36a	6:44a
-	-	-	-	-	-	-	6:35a	6:49a	6:52a	6:59a	7:03a	7:07a	7:17a
-	-	-	-	-	-	-	7:05a	7:19a	7:22a	7:29a	7:33a	7:37a	7:47a
6:50a	6:58a	7:02a	7:05a	7:12a	7:15a	7:29a	7:35a	7:49a	7:52a	7:59a	8:03a	8:07a	8:17a
7:15a	7:24a	7:28a	7:32a	7:41a	7:44a	7:58a	8:05a	8:19a	8:22a	8:29a	8:33a	8:37a	8:47a
7:45a	7:54a	7:58a	8:02a	8:11a	8:14a	8:28a	8:35a	8:49a	8:52a	8:59a	9:02a	9:05a	9:13a
8:20a	8:28a	8:32a	8:35a	8:42a	8:45a	8:59a	9:05a	9:19a	9:22a	9:29a	9:32a	9:35a	9:43a
8:50a	8:58a	9:02a	9:05a	9:12a	9:14a	9:28a	9:35a	9:49a	9:52a	9:59a	10:02a	10:05a	10:13a
9:20a	9:28a	9:32a	9:35a	9:42a	9:44a	9:58a	10:05a	10:19a	10:22a	10:29a	10:32a	10:35a	10:43a
9:50a	9:58a	10:02a	10:05a	10:12a	10:14a	10:28a	10:35a	10:49a	10:52a	10:59a	11:02a	11:05a	11:13a
10:20a	10:28a	10:32a	10:35a	10:42a	10:44a	10:58a	11:05a	11:19a	11:22a	11:29a	11:32a	11:35a	11:43a
10:50a	10:58a	11:02a	11:05a	11:12a	11:14a	11:28a	11:35a	11:49a	11:52a	11:59a	12:02p	12:05p	12:13p
11:20a	11:28a	11:32a	11:35a	11:42a	11:44a	11:58a	12:05p	12:19p	12:22p	12:29p	12:32p	12:35p	12:43p
11:50a	11:58a	12:02p	12:05p	12:12p	12:14p	12:28p	12:35p	12:49p	12:52p	12:59p	1:02p	1:05p	1:13p
12:20p	12:28p	12:32p	12:35p	12:42p	12:44p	12:58p	1:05p	1:19p	1:22p	1:29p	1:32p	1:35p	1:43p
12:50p	12:58p	1:02p	1:05p	1:12p	1:14p	1:28p	1:35p	1:49p	1:52p	1:59p	2:02p	2:05p	2:13p
1:20p	1:28p	1:32p	1:35p	1:42p	1:44p	1:58p	2:05p	2:19p	2:22p	2:29p	2:32p	2:35p	2:43p
1:50p	1:58p	2:02p	2:05p	2:12p	2:14p	2:28p	2:35p	2:49p	2:52p	2:59p	3:02p	3:05p	3:13p
2:20p	2:28p	2:32p	2:35p	2:42p	2:44p	2:58p	3:05p	3:19p	3:22p	3:29p	3:32p	3:35p	3:43p
2:49p	2:58p	3:02p	3:06p	3:14p	3:17p	3:31p	3:35p	3:49p	3:52p	3:59p	4:02p	4:05p	4:13p
3:19p	3:28p	3:32p	3:36p	3:44p	3:47p	4:01p	4:05p	4:19p	4:22p	4:29p	4:32p	4:35p	4:43p
3:49p	3:58p	4:02p	4:06p	4:13p	4:16p	4:30p	4:35p	4:49p	4:52p	4:59p	5:02p	5:05p	5:13p
4:19p	4:28p	4:32p	4:36p	4:43p	4:46p	5:00p	5:05p	5:19p	5:22p	5:29p	5:32p	5:35p	5:43p
4:49p	4:58p	5:02p	5:06p	5:13p	5:16p	5:30p	5:35p	5:49p	5:52p	5:59p	6:02p	6:05p	6:13p
5:19p	5:28p	5:32p	5:36p	5:43p	5:46p	6:00p	6:05p	6:19p	6:22p	6:29p	6:32p	6:35p	6:41p
5:49p	5:58p	6:02p	6:05p	6:12p	6:15p	6:29p	6:35p	6:49p	6:52p	6:59p	7:02p	7:05p	7:11p
6:20p	6:28p	6:32p	6:35p	6:42p	6:44p	6:58p	7:05p	7:19p	7:22p	7:29p	7:32p	7:35p	7:41p
7:20p	7:28p	7:32p	7:35p	7:42p	7:44p	7:58p	8:05p	8:19p	8:22p	8:29p	8:32p	8:35p	8:41p
8:20p	8:28p	8:32p	8:35p	8:42p	8:44p	8:58p	9:05p	9:19p	9:22p	9:29p	9:32p	9:35p	9:41p
9:20p	9:28p	9:32p	9:35p	9:42p	9:44p	9:58p	9:35p	9:49p	9:52p	9:59p	10:02p	10:05p	10:11p
10:15p	10:23p	10:27p	10:30p	10:37p	10:39p	10:53p	10:15p	10:29p	10:32p	10:39p	10:42p	10:45p	10:51p

SUNDAY OUTBOUND

SUNDAY INBOUND

Downtown Transit Center 7	Agua Fria/Alire 6	Agua Fria/Osage 5	Agua Fria/Siler 4	Agua Fria/Jemez 3	Airport/San Felipe 2	Santa Fe Place 1	Santa Fe Place 1	Airport/San Felipe 2	Agua Fria/Jemez 3	Agua Fria/Siler 4	Agua Fria/Osage 5	Agua Fria/Alire 6	Downtown Transit Center 7
9:30a	9:38a	9:42a	9:45a	9:52a	9:54a	10:08a	10:15a	10:29a	10:32a	10:39a	10:42a	10:45a	10:53a
10:30a	10:38a	10:42a	10:45a	10:52a	10:54a	11:08a	11:15a	11:29a	11:32a	11:39a	11:42a	11:45a	11:53a
11:30a	11:38a	11:42a	11:45a	11:52a	11:54a	12:08p	12:15p	12:29p	12:32p	12:39p	12:42p	12:45p	12:53p
12:30p	12:38p	12:42p	12:45p	12:52p	12:54p	1:08p	1:15p	1:29p	1:32p	1:39p	1:42p	1:45p	1:53p
1:30p	1:38p	1:42p	1:45p	1:52p	1:54p	2:08p	2:15p	2:29p	2:32p	2:39p	2:42p	2:45p	2:53p
2:30p	2:38p	2:42p	2:45p	2:52p	2:54p	3:08p	3:15p	3:29p	3:32p	3:39p	3:42p	3:45p	3:53p
3:30p	3:38p	3:42p	3:45p	3:52p	3:54p	4:08p	4:15p	4:29p	4:32p	4:39p	4:42p	4:45p	4:53p
4:30p	4:38p	4:42p	4:45p	4:52p	4:54p	5:08p	5:15p	5:29p	5:32p	5:39p	5:42p	5:45p	5:53p
5:30p	5:38p	5:42p	5:45p	5:52p	5:54p	6:08p	6:15p	6:29p	6:32p	6:39p	6:42p	6:45p	6:53p

**ROUTE 1
AGUA FRIA
SUNDAY**

- ▲ Route 1 Sunday
- Route 2
- Route 4
- ★ Places of Interest
- ① Time Points

SANTA FE TRAILS



Route 2

2 **ROUTE 2 - CERRILLOS ROAD**
WEEKDAY OUTBOUND **WEEKDAY INBOUND**

Downtown Transit Center 5	Cerrillos/ Cordova 4	Cerrillos/ Osage 3	Cerrillos/ Siler 2	Santa Fe Place 1	Santa Fe Place 1	Cerrillos/ Siler 2	Cerrillos/ Osage 3	Cerrillos/ Cordova 4	Downtown Transit Center 5
-	-	-	-	-	6:05a	6:14a	6:18a	6:22a	6:30a
-	-	-	-	-	6:35a	6:47a	6:51a	6:55a	7:07a
6:35a	6:43a	6:48a	6:52a	7:01a	7:05a	7:17a	7:21a	7:25a	7:37a
-	-	-	-	-	7:20a	7:32a	7:36a	7:40a	7:52a
7:00a	7:12a	7:17a	7:21a	7:33a	7:35a	7:47a	7:51a	7:55a	8:07a
7:12a	7:24a	7:29a	7:33a	7:45a	7:50a	8:02a	8:06a	8:10a	8:22a
7:27a	7:39a	7:44a	7:48a	8:00a	8:05a	8:17a	8:21a	8:25a	8:37a
7:42a	7:54a	7:59a	8:03a	8:15a	8:20a	8:32a	8:36a	8:40a	8:52a
7:57a	8:09a	8:14a	8:18a	8:30a	8:35a	8:47a	8:51a	8:55a	9:07a
8:12a	8:24a	8:29a	8:33a	8:45a	8:50a	9:02a	9:06a	9:10a	9:22a
8:27a	8:39a	8:44a	8:48a	9:00a	9:05a	9:17a	9:21a	9:25a	9:37a
8:42a	8:54a	8:59a	9:03a	9:15a	9:20a	9:32a	9:36a	9:40a	9:52a
8:57a	9:09a	9:14a	9:18a	9:30a	9:35a	9:47a	9:51a	9:55a	10:07a
9:12a	9:24a	9:29a	9:33a	9:45a	9:50a	10:02a	10:06a	10:10a	10:22a
9:27a	9:39a	9:44a	9:48a	10:00a	10:05a	10:17a	10:21a	10:25a	10:37a
9:42a	9:54a	9:59a	10:03a	10:15a	10:20a	10:32a	10:36a	10:40a	10:52a
9:57a	10:09a	10:14a	10:18a	10:30a	10:35a	10:47a	10:51a	10:55a	11:07a
10:12a	10:24a	10:29a	10:33a	10:45a	10:50a	11:02a	11:06a	11:10a	11:22a
10:27a	10:39a	10:44a	10:48a	11:00a	11:05a	11:17a	11:21a	11:25a	11:37a
10:42a	10:54a	10:59a	11:03a	11:15a	11:20a	11:32a	11:36a	11:40a	11:52a
10:57a	11:09a	11:14a	11:18a	11:30a	11:35a	11:47a	11:51a	11:55a	12:07p
11:12a	11:24a	11:29a	11:33a	11:45a	11:50a	12:02p	12:06p	12:10p	12:22p
11:27a	11:39a	11:44a	11:48a	12:00p	12:05p	12:17p	12:21p	12:25p	12:37p
11:42a	11:54a	11:59a	12:03p	12:15p	12:20p	12:32p	12:36p	12:40p	12:52p
11:57a	12:09p	12:14p	12:18p	12:30p	12:35p	12:47p	12:51p	12:55p	1:07p
12:12p	12:24p	12:29p	12:33p	12:45p	12:50p	1:02p	1:06p	1:10p	1:22p
12:27p	12:39p	12:44p	12:48p	1:00p	-	-	-	-	-
-	-	-	-	-	1:05p	1:17p	1:21p	1:25p	1:37p
12:42p	12:54p	12:59p	1:03p	1:15p	1:20p	1:32p	1:36p	1:40p	1:52p
12:57p	1:09p	1:14p	1:18p	1:30p	1:35p	1:47p	1:51p	1:55p	2:07p
1:12p	1:24p	1:29p	1:33p	1:45p	1:50p	2:02p	2:06p	2:10p	2:22p
1:27p	1:39p	1:44p	1:48p	2:00p	2:05p	2:17p	2:21p	2:25p	2:37p
1:42p	1:54p	1:59p	2:03p	2:15p	2:20p	2:32p	2:36p	2:40p	2:52p
1:57p	2:09p	2:14p	2:18p	2:30p	2:35p	2:47p	2:51p	2:55p	3:07p
2:12p	2:24p	2:29p	2:33p	2:45p	2:50p	3:02p	3:06p	3:10p	3:22p
2:27p	2:39p	2:44p	2:48p	3:00p	-	-	-	-	-
-	-	-	-	-	3:05p	3:17p	3:21p	3:25p	3:37p
2:42p	2:54p	2:59p	3:03p	3:15p	-	-	-	-	-
-	-	-	-	-	3:20p	3:32p	3:36p	3:40p	3:52p
2:57p	3:09p	3:14p	3:18p	3:30p	3:35p	3:47p	3:51p	3:55p	4:07p
3:12p	3:24p	3:29p	3:33p	3:45p	3:50p	4:02p	4:06p	4:10p	4:22p
3:27p	3:39p	3:44p	3:48p	4:00p	4:05p	4:17p	4:21p	4:25p	4:37p
3:42p	3:54p	3:59p	4:03p	4:15p	4:20p	4:32p	4:36p	4:40p	4:52p
3:57p	4:09p	4:14p	4:18p	4:30p	4:35p	4:47p	4:51p	4:55p	5:07p
4:12p	4:24p	4:29p	4:33p	4:45p	4:50p	5:02p	5:06p	5:10p	5:22p
4:27p	4:39p	4:44p	4:48p	5:00p	5:05p	5:17p	5:21p	5:25p	5:37p
4:42p	4:54p	4:59p	5:03p	5:15p	5:20p	5:32p	5:36p	5:40p	5:52p
4:57p	5:09p	5:14p	5:18p	5:30p	5:35p	5:47p	5:51p	5:55p	6:07p
5:12p	5:24p	5:29p	5:33p	5:45p	-	-	-	-	-
5:27p	5:39p	5:44p	5:48p	6:00p	6:05p	6:17p	6:21p	6:25p	6:37p
5:57p	6:09p	6:14p	6:18p	6:30p	6:35p	6:47p	6:51p	6:55p	7:07p
6:25p	6:37p	6:42p	6:46p	6:58p	7:05p	7:17p	7:21p	7:25p	7:37p
6:55p	7:07p	7:12p	7:16p	7:28p	7:35p	7:47p	7:51p	7:55p	8:07p
7:25p	7:37p	7:42p	7:46p	7:58p	8:05p	8:17p	8:21p	8:25p	8:37p
7:55p	8:07p	8:12p	8:16p	8:28p	8:35p	8:47p	8:51p	8:55p	9:07p
8:25p	8:37p	8:42p	8:46p	8:58p	-	-	-	-	-
8:55p	9:07p	9:12p	9:16p	9:28p	9:35p	9:47p	9:51p	9:55p	10:07p
9:25p	9:37p	9:42p	9:46p	9:58p	10:15p	10:27p	10:31p	10:35p	10:47p
10:15p	10:23p	10:28p	10:31p	10:41p	-	-	-	-	-



SATURDAY OUTBOUND

SATURDAY INBOUND

Downtown Transit Center 5	Cerrillos/Cordova 4	Cerrillos/Osage 3	Cerrillos/Siler 2	Santa Fe Place 1	Santa Fe Place 1	Cerrillos/Siler 2	Cerrillos/Osage 3	Cerrillos/Cordova 4	Downtown Transit Center 5
-	-	-	-	-	8:15a	8:25a	8:31a	8:35a	8:47a
8:25a	8:37a	8:42a	8:48a	8:59a	8:45a	8:55a	9:01a	9:05a	9:17a
8:55a	9:07a	9:12a	9:18a	9:29a	9:15a	9:25a	9:31a	9:35a	9:47a
9:25a	9:37a	9:42a	9:48a	9:59a	9:45a	9:55a	10:01a	10:05a	10:17a
9:55a	10:07a	10:12a	10:18a	10:29a	10:15a	10:25a	10:31a	10:35a	10:47a
10:25a	10:37a	10:42a	10:48a	10:59a	10:45a	10:55a	11:01a	11:05a	11:17a
10:55a	11:07a	11:12a	11:18a	11:29a	11:15a	11:25a	11:31a	11:35a	11:47a
11:25a	11:37a	11:42a	11:48a	11:59a	11:45a	11:55a	12:01p	12:05p	12:17p
11:55a	12:07p	12:12p	12:18p	12:29p	12:15p	12:25p	12:31p	12:35p	12:47p
12:25p	12:37p	12:42p	12:48p	12:59p	12:45p	12:55p	1:01p	1:05p	1:17p
12:55p	1:07p	1:12p	1:18p	1:29p	1:15p	1:25p	1:31p	1:35p	1:47p
1:25p	1:37p	1:42p	1:48p	1:59p	1:45p	1:55p	2:01p	2:05p	2:17p
1:55p	2:07p	2:12p	2:18p	2:29p	2:15p	2:25p	2:31p	2:35p	2:47p
2:25p	2:37p	2:42p	2:48p	2:59p	2:45p	2:55p	3:01p	3:05p	3:17p
2:55p	3:07p	3:12p	3:18p	3:29p	3:15p	3:25p	3:31p	3:35p	3:47p
3:25p	3:37p	3:42p	3:48p	3:59p	3:45p	3:55p	4:01p	4:05p	4:17p
3:55p	4:07p	4:12p	4:18p	4:29p	4:15p	4:25p	4:31p	4:35p	4:47p
4:25p	4:37p	4:42p	4:48p	4:59p	4:45p	4:55p	5:01p	5:05p	5:17p
4:55p	5:07p	5:12p	5:18p	5:29p	5:15p	5:25p	5:31p	5:35p	5:47p
5:25p	5:37p	5:42p	5:48p	5:59p	5:45p	5:55p	6:01p	6:05p	6:17p
5:55p	6:07p	6:12p	6:18p	6:29p	6:15p	6:25p	6:31p	6:35p	6:47p
6:25p	6:37p	6:42p	6:48p	6:59p	-	-	-	-	-
6:55p	7:07p	7:12p	7:18p	7:29p	7:05p	7:15p	7:21p	7:25p	7:37p
7:40p	7:52p	7:57p	8:03p	8:14p	-	-	-	-	-

SUNDAY OUTBOUND

SUNDAY INBOUND

Downtown Transit Center ⑤	Cerrillos/ Cordova ④	Cerrillos/ Osage ③	Cerrillos/ Siler ②	Santa Fe Place ①	Santa Fe Place ①	Cerrillos/ Siler ②	Cerrillos/ Osage ③	Cerrillos/ Cordova ④	Downtown Transit Center ⑤
-	-	-	-	-	9:45a	9:55a	10:01a	10:06a	10:18a
-	-	-	-	-	10:15a	10:25a	10:31a	10:36a	10:48a
10:00a	10:12a	10:17a	10:23a	10:33a	10:45a	10:55a	11:01a	11:06a	11:18a
10:30a	10:42a	10:47a	10:53a	11:03a	11:15a	11:25a	11:31a	11:36a	11:48a
11:00a	11:12a	11:17a	11:23a	11:33a	11:45a	11:55a	12:01p	12:06p	12:18p
11:30a	11:42a	11:47a	11:53a	12:03p	12:15p	12:25p	12:31p	12:36p	12:48p
12:00p	12:12p	12:17p	12:23p	12:33p	12:45p	12:55p	1:01p	1:06p	1:18p
12:30p	12:42p	12:47p	12:53p	1:03p	1:15p	1:25p	1:31p	1:36p	1:48p
1:00p	1:12p	1:17p	1:23p	1:33p	1:45p	1:55p	2:01p	2:06p	2:18p
1:30p	1:42p	1:47p	1:53p	2:03p	2:15p	2:25p	2:31p	2:36p	2:48p
2:00p	2:12p	2:17p	2:23p	2:33p	2:45p	2:55p	3:01p	3:06p	3:18p
2:30p	2:42p	2:47p	2:53p	3:03p	3:15p	3:25p	3:31p	3:36p	3:48p
3:00p	3:12p	3:17p	3:23p	3:33p	-	-	-	-	-
-	-	-	-	-	3:45p	3:55p	4:01p	4:06p	4:18p
3:30p	3:42p	3:47p	3:53p	4:03p	4:15p	4:25p	4:31p	4:36p	4:48p
4:00p	4:12p	4:17p	4:23p	4:33p	4:45p	4:55p	5:01p	5:06p	5:18p
4:30p	4:42p	4:47p	4:53p	5:03p	5:15p	5:25p	5:31p	5:36p	5:48p
5:00p	5:12p	5:17p	5:23p	5:33p	5:45p	5:55p	6:01p	6:06p	6:18p
5:30p	5:42p	5:47p	5:53p	6:03p	6:15p	6:25p	6:31p	6:36p	6:48p
6:00p	6:12p	6:17p	6:23p	6:33p	-	-	-	-	-

Route 4

4 ROUTE 4 - SOUTHSIDE

WEEKDAY OUTBOUND **WEEKDAY INBOUND**

Downtown Transit Center 6	St. Francis/Cordova 5	St. Michaels/Pacheco 4	Siringo/Carlos Rey 3	Rodeo Plaza 2	Santa Fe Place 1	Santa Fe Place 1	Rodeo Plaza 2	Siringo/Carlos Rey 3	St. Michaels/Pacheco 4	St. Francis/Cordova 5	Downtown Transit Center 6
-	-	-	-	-	-	6:05a	6:11a	6:16a	6:24a	6:30a	6:40a
6:23a	6:32a	6:38a	6:46a	6:51a	6:58a	6:35a	6:41a	6:46a	6:54a	7:00a	7:10a
6:53a	7:02a	7:08a	7:16a	7:21a	7:28a	7:05a	7:11a	7:16a	7:24a	7:30a	7:40a
7:23a	7:32a	7:38a	7:46a	7:51a	7:58a	8:05a	8:11a	8:16a	8:24a	8:30a	8:41a
7:53a	8:02a	8:08a	8:16a	8:21a	8:28a	8:35a	8:41a	8:46a	8:54a	9:00a	9:10a
8:23a	8:32a	8:38a	8:46a	8:51a	8:58a	9:05a	9:11a	9:16a	9:24a	9:30a	9:40a
8:53a	9:02a	9:08a	9:16a	9:21a	9:28a	9:35a	9:41a	9:46a	9:54a	10:00a	10:10a
9:23a	9:32a	9:38a	9:46a	9:51a	9:58a	-	-	-	-	-	-
-	-	-	-	-	-	10:05a	10:11a	10:16a	10:24a	10:30a	10:40a
9:53a	10:02a	10:08a	10:16a	10:21a	10:28a	10:35a	10:41a	10:46a	10:54a	11:00a	11:10a
10:23a	10:32a	10:38a	10:46a	10:51a	10:58a	11:05a	11:11a	11:16a	11:24a	11:30a	11:40a
10:53a	11:02a	11:08a	11:16a	11:21a	11:28a	11:35a	11:41a	11:46a	11:54a	12:00p	12:10p
11:23a	11:32a	11:38a	11:46a	11:51a	11:58a	12:05p	12:12p	12:17p	12:25p	12:30p	12:41p
11:53a	12:02p	12:08p	12:16p	12:21p	12:28p	12:35p	12:42p	12:47p	12:55p	1:00p	1:11p
12:23p	12:32p	12:38p	12:46p	12:51p	12:58p	1:05p	1:12p	1:17p	1:26p	1:31p	1:43p
12:53p	1:02p	1:08p	1:16p	1:22p	1:29p	-	-	-	-	-	-
-	-	-	-	-	-	1:35p	1:42p	1:47p	1:56p	2:01p	2:13p
1:23p	1:33p	1:39p	1:47p	1:53p	2:00p	-	-	-	-	-	-
-	-	-	-	-	-	2:05p	2:12p	2:17p	2:26p	2:31p	2:43p
1:53p	2:03p	2:09p	2:18p	2:24p	2:31p	2:35p	2:42p	2:47p	2:56p	3:01p	3:13p
2:23p	2:33p	2:39p	2:48p	2:54p	3:01p	3:05p	3:12p	3:17p	3:26p	3:31p	3:43p
2:53p	3:03p	3:09p	3:18p	3:24p	3:31p	3:35p	3:42p	3:47p	3:56p	4:01p	4:13p
3:23p	3:33p	3:39p	3:48p	3:54p	4:01p	4:05p	4:12p	4:17p	4:26p	4:31p	4:43p
3:53p	4:03p	4:09p	4:18p	4:24p	4:31p	4:35p	4:42p	4:47p	4:56p	5:01p	5:13p
4:23p	4:33p	4:39p	4:48p	4:54p	5:01p	-	-	-	-	-	-
-	-	-	-	-	-	5:05p	5:12p	5:17p	5:26p	5:31p	5:43p
4:53p	5:03p	5:09p	5:18p	5:24p	5:31p	5:35p	5:42p	5:47p	5:56p	6:01p	6:11p
5:23p	5:33p	5:39p	5:48p	5:54p	6:01p	6:05p	6:12p	6:17p	6:25p	6:31p	6:41p
5:53p	6:03p	6:09p	6:17p	6:22p	6:29p	6:35p	6:42p	6:47p	6:55p	7:01p	7:11p
6:53p	7:02p	7:08p	7:16p	7:21p	7:28p	7:35p	7:41p	7:46p	7:54p	8:00p	8:10p
7:53p	8:02p	8:08p	8:16p	8:21p	8:28p	8:35p	8:41p	8:46p	8:54p	9:00p	9:10p
8:53p	9:02p	9:08p	9:16p	9:21p	9:28p	9:35p	9:41p	9:46p	9:54p	10:00p	10:10p
9:45p	9:54p	10:00p	10:08p	10:13p	10:20p	10:20p	10:26p	10:31p	10:39p	10:45p	10:55p
10:15p	10:24p	10:30p	10:38p	10:43p	10:50p	-	-	-	-	-	-

SATURDAY OUTBOUND **SATURDAY INBOUND**

Downtown Transit Center 6	St. Francis/Cordova 5	St. Michaels/Pacheco 4	Siringo/Carlos Rey 3	Rodeo Plaza 2	Santa Fe Place 1	Santa Fe Place 1	Rodeo Plaza 2	Siringo/Carlos Rey 3	St. Michaels/Pacheco 4	St. Francis/Cordova 5	Downtown Transit Center 6
8:03a	8:12a	8:18a	8:26a	8:31a	8:38a	8:45a	8:51a	8:56a	9:04a	9:10a	9:20a
9:03a	9:12a	9:18a	9:26a	9:31a	9:38a	9:45a	9:51a	9:56a	10:04a	10:10a	10:20a
10:03a	10:12a	10:18a	10:26a	10:31a	10:38a	10:45a	10:51a	10:56a	11:04a	11:10a	11:20a
11:03a	11:12a	11:18a	11:26a	11:31a	11:38a	-	-	-	-	-	-
-	-	-	-	-	-	11:45a	11:51a	11:56a	12:04p	12:10p	12:20p
12:03p	12:12p	12:18p	12:26p	12:31p	12:38p	12:45p	12:51p	12:56p	1:04p	1:10p	1:20p
1:03p	1:12p	1:18p	1:26p	1:31p	1:38p	1:45p	1:51p	1:56p	2:04p	2:10p	2:20p
2:03p	2:12p	2:18p	2:26p	2:31p	2:38p	2:45p	2:51p	2:56p	3:04p	3:10p	3:20p
3:03p	3:12p	3:18p	3:26p	3:31p	3:38p	3:45p	3:51p	3:56p	4:04p	4:10p	4:20p
4:03p	4:12p	4:18p	4:26p	4:31p	4:38p	4:45p	4:51p	4:56p	5:04p	5:10p	5:20p
5:03p	5:12p	5:18p	5:26p	5:31p	5:38p	5:45p	5:51p	5:56p	6:04p	6:10p	6:20p
6:03p	6:12p	6:18p	6:26p	6:31p	6:38p	6:45p	6:51p	6:56p	7:04p	7:10p	7:20p

SUNDAY OUTBOUND

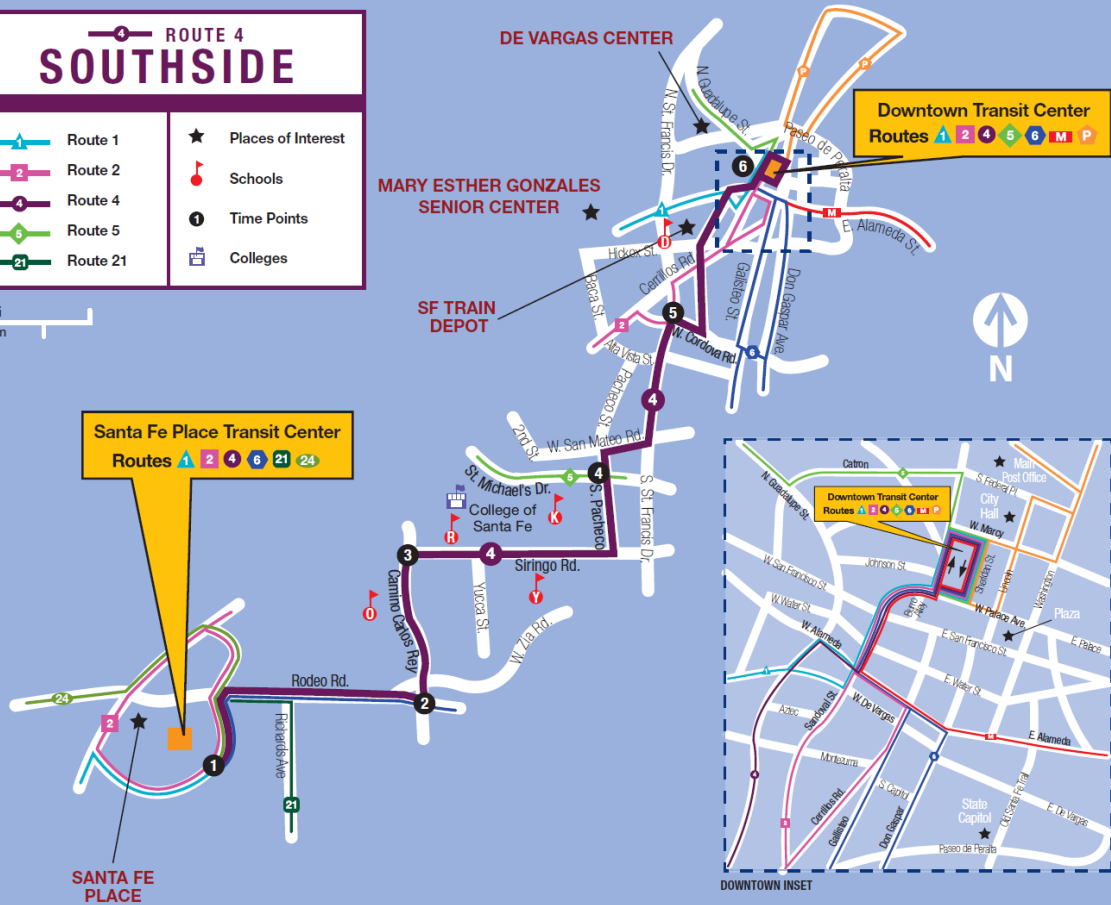
SUNDAY INBOUND

Downtown Transit Center 6	St. Francis/Cordova 5	St. Michaels/Pacheco 4	Siringo/Carlos Rey 3	Rodeo Plaza 2	Santa Fe Place 1	Santa Fe Place 1	Rodeo Plaza 2	Siringo/Carlos Rey 3	St. Michaels/Pacheco 4	St. Francis/Cordova 5	Downtown Transit Center 6
10:03a	10:12a	10:18a	10:26a	10:31a	10:38a	10:45a	10:51a	10:56a	11:04a	11:10a	11:20a
11:03a	11:12a	11:18a	11:26a	11:31a	11:38a	11:45a	11:51a	11:56a	12:04p	12:10p	12:20p
12:03p	12:12p	12:18p	12:26p	12:31p	12:38p	12:45p	12:51p	12:56p	1:04p	1:10p	1:20p
1:03p	1:12p	1:18p	1:26p	1:31p	1:38p	-	-	-	-	-	-
-	-	-	-	-	-	1:45p	1:51p	1:56p	2:04p	2:10p	2:20p
2:03p	2:12p	2:18p	2:26p	2:31p	2:38p	2:45p	2:51p	2:56p	3:04p	3:10p	3:20p
3:03p	3:12p	3:18p	3:26p	3:31p	3:38p	3:45p	3:51p	3:56p	4:04p	4:10p	4:20p
4:03p	4:12p	4:18p	4:26p	4:31p	4:38p	4:45p	4:51p	4:56p	5:04p	5:10p	5:20p
5:03p	5:12p	5:18p	5:26p	5:31p	5:38p	5:45p	5:51p	5:56p	6:04p	6:10p	6:20p
6:03p	6:12p	6:18p	6:26p	6:31p	6:38p	-	-	-	-	-	-

ROUTE 4 SOUTHSIDE

- Route 1
- Route 2
- Route 4
- Route 5
- Route 21

- ★ Places of Interest
- 🎓 Schools
- 🕒 Time Points
- 🏫 Colleges



Santa Fe Place Transit Center
Routes 1 2 4 6 21 24

SANTA FE PLACE

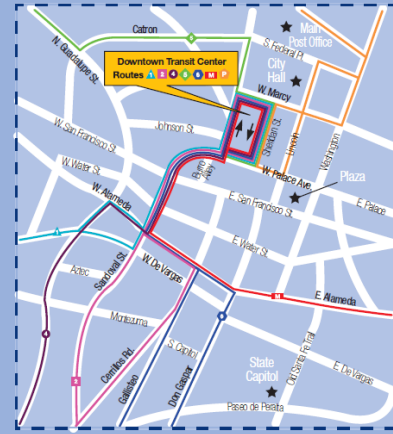
DOWNTOWN INSET

1 mi
1 km



**ROUTE 5
CROSSTOWN**

	Route 1		Places of Interest
	Route 2		Schools
	Route 4		Time Points
	Route 5		College
	Route 6		Hospital



DOWNTOWN INSET

Route 6

6 — **ROUTE 6 - RODEO ROAD**

WEEKDAY INBOUND **WEEKDAY OUTBOUND**

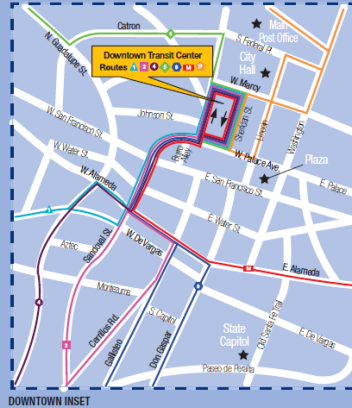
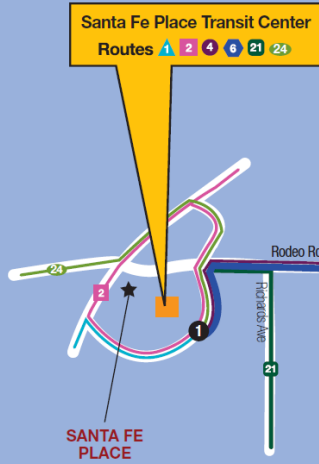
Santa Fe Place 1	Rodeo Plaza 2	Rodeo Park East 3	St. Vincent Hospital 4	Downtown Transit Center 5	Downtown Transit Center 5	St. Vincent Hospital 4	Rodeo Park East 3	Rodeo Plaza 2	Santa Fe Place 1
5:50a	5:56a	6:03a	6:21a	6:36a	7:00a	7:15a	7:33a	7:40a	7:47a
6:50a	6:56a	7:03a	7:21a	7:36a	7:55a	8:11a	8:31a	8:40a	8:47a
7:50a	7:56a	8:03a	8:21a	8:36a	9:00a	9:15a	9:33a	9:40a	9:47a
8:50a	8:56a	9:03a	9:21a	9:36a	10:00a	10:15a	10:33a	10:40a	10:47a
9:50a	9:56a	10:03a	10:21a	10:36a	11:00a	11:15a	11:33a	11:40a	11:47a
10:50a	10:56a	11:03a	11:21a	11:36a	-	-	-	-	-
-	-	-	-	-	12:00p	12:15p	12:33p	12:40p	12:47p
11:50a	11:56a	12:03p	12:21p	12:36p	1:00p	1:15p	1:33p	1:40p	1:47p
12:50p	12:57p	1:04p	1:22p	1:37p	2:00p	2:15p	2:33p	2:40p	2:47p
1:50p	1:57p	2:04p	2:22p	2:37p	3:00p	3:15p	3:33p	3:40p	3:47p
2:50p	2:57p	3:04p	3:22p	3:37p	4:00p	4:15p	4:34p	4:41p	4:48p
3:50p	3:57p	4:04p	4:22p	4:37p	5:00p	5:15p	5:34p	5:41p	5:48p
4:50p	4:57p	5:04p	5:22p	5:37p	6:00p	6:15p	6:33p	6:40p	6:47p
5:50p	5:57p	6:04p	6:22p	6:37p	7:00p	7:13p	7:31p	7:38p	7:45p
6:50p	6:56p	7:03p	7:21p	7:36p	-	-	-	-	-

SATURDAY INBOUND **SATURDAY OUTBOUND**

Santa Fe Place 1	Rodeo Plaza 2	Rodeo Park East 3	St. Vincent Hospital 4	Downtown Transit Center 5	Downtown Transit Center 5	St. Vincent Hospital 4	Rodeo Park East 3	Rodeo Plaza 2	Santa Fe Place 1
-	-	-	-	-	9:15a	9:30a	9:48a	9:55a	10:02a
9:15a	9:21a	9:28a	9:46a	10:01a	10:15a	10:30a	10:48a	10:55a	11:02a
10:15a	10:21a	10:28a	10:46a	11:01a	-	-	-	-	-
-	-	-	-	-	11:15a	11:30a	11:48a	11:55a	12:02p
11:15a	11:21a	11:28a	11:46a	12:01p	12:15p	12:30p	12:48p	12:55p	1:02p
12:15p	12:21p	12:28p	12:46p	1:01p	1:15p	1:30p	1:48p	1:55p	2:02p
1:15p	1:21p	1:28p	1:46p	2:01p	-	-	-	-	-
-	-	-	-	-	2:15p	2:30p	2:48p	2:55p	3:02p
2:15p	2:21p	2:28p	2:46p	3:01p	3:15p	3:30p	3:48p	3:55p	4:02p
3:15p	3:21p	3:28p	3:46p	4:01p	4:15p	4:30p	4:48p	4:55p	5:02p
4:15p	4:21p	4:28p	4:46p	5:01p	5:15p	5:30p	5:48p	5:55p	6:02p
5:15p	5:21p	5:28p	5:46p	6:01p	6:15p	6:30p	6:48p	6:55p	7:02p
6:15p	6:21p	6:28p	6:46p	7:01p	-	-	-	-	-

ROUTE 6 RODEO ROAD

	Route 2	★	Places of Interest
	Route 5	🎓	Schools
	Route 6	🕒	Time Points
	Route 21	🏥	Hospital
	Route 24		
	Route M		



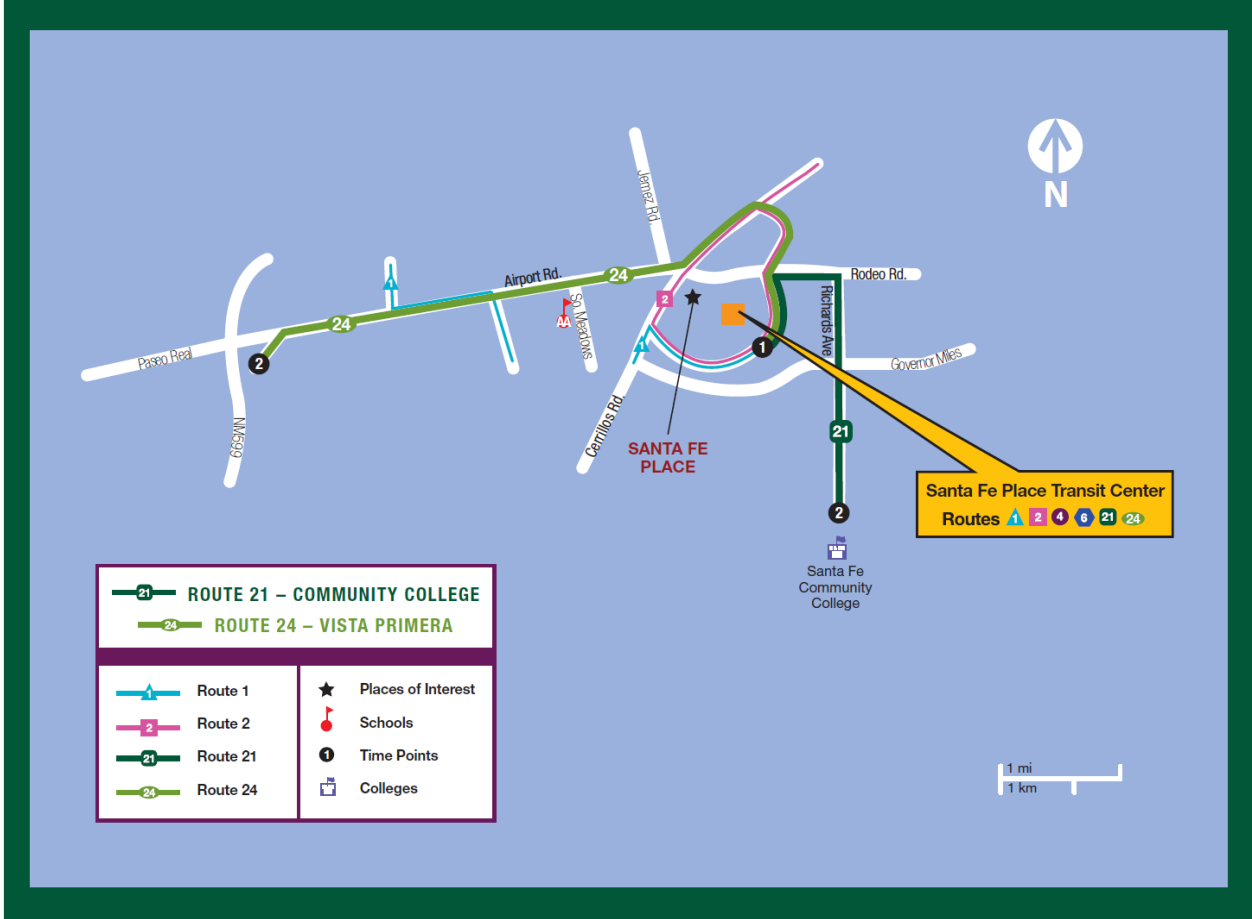
Route 21/24

21 — **ROUTE 21 - SANTA FE COMMUNITY COLLEGE / ROUTE 24 - VISTA PRIMERA**
WEEKDAY INBOUND **WEEKDAY OUTBOUND**

Vista Primera 2	Santa Fe Place 1	Santa Fe Place 1	SFCC 2	SFCC 2	Santa Fe Place 1	Santa Fe Place 1	Vista Primera 2
6:02a	6:17a	-	-	-	-	6:20a	6:35a
6:37a	6:52a	-	-	-	-	6:55a	7:10a
-	-	-	-	-	-	7:30a	7:45a
7:15a	7:30a	7:35a	7:44a	7:49a	8:00a	8:05a	8:20a
7:50a	8:05a	8:10a	8:19a	8:24a	8:35a	8:40a	8:55a
8:25a	8:40a	8:45a	8:54a	8:59a	9:10a	9:15a	9:30a
9:00a	9:15a	9:20a	9:29a	9:34a	9:45a	9:50a	10:05a
9:35a	9:50a	9:55a	10:04a	10:09a	10:20a	10:25a	10:40a
10:10a	10:25a	10:30a	10:39a	10:44a	10:55a	11:00a	11:15a
10:45a	11:00a	11:05a	11:14a	11:19a	11:30a	11:35a	11:50a
11:20a	11:35a	11:40a	11:49a	11:54a	12:05p	12:10p	12:25p
11:55a	12:10p	12:15p	12:24p	12:29p	12:40p	12:45p	1:00p
12:30p	12:45p	12:50p	12:59p	1:04p	1:15p	1:20p	1:35p
1:05p	1:20p	1:25p	1:34p	1:39p	1:50p	-	-
-	-	-	-	-	-	1:55p	2:10p
1:40p	1:55p	2:00p	2:09p	2:14p	2:25p	2:30p	2:45p
2:15p	2:30p	2:35p	2:44p	2:49p	3:00p	3:05p	3:20p
2:50p	3:05p	-	-	-	-	-	-
-	-	3:10p	3:19p	3:24p	3:35p	3:40p	3:55p
3:25p	3:40p	3:45p	3:54p	3:59p	4:10p	4:15p	4:30p
4:00p	4:15p	4:20p	4:29p	4:34p	4:45p	4:50p	5:05p
4:35p	4:50p	4:55p	5:04p	5:09p	5:20p	5:25p	5:40p
5:10p	5:25p	5:30p	5:39p	5:44p	5:55p	6:00p	6:15p
5:45p	6:00p	6:05p	6:14p	6:19p	6:30p	6:35p	6:50p
6:25p	6:40p	6:45p	6:54p	6:59p	7:10p	7:15p	7:30p
7:35p	7:50p	7:55p	8:04p	8:09p	8:20p	8:25p	8:40p
-	-	-	-	-	-	9:05p	9:20p
8:45p	9:00p	9:05p	9:14p	9:19p	9:30p	-	-
9:20p	9:35p	-	-	-	-	-	-
-	-	-	-	-	-	10:41p	10:56p

SATURDAY INBOUND **SATURDAY OUTBOUND**

Vista Primera 2	Santa Fe Place 1	Santa Fe Place 1	SFCC 2	SFCC 2	Santa Fe Place 1	Santa Fe Place 1	Vista Primera 2
8:25a	8:40a	8:45a	8:54a	8:59a	9:10a	9:15a	9:30a
9:35a	9:50a	9:55a	10:04a	10:09a	10:20a	10:25a	10:40a
10:45a	11:00a	11:05a	11:14a	11:19a	11:30a	11:35a	11:50a
11:55a	12:10p	12:15p	12:24p	12:29p	12:40p	12:45p	1:00p
1:05p	1:20p	1:25p	1:34p	1:39p	1:50p	1:55p	2:10p
2:15p	2:30p	2:35p	2:44p	2:49p	3:00p	3:05p	3:20p
3:25p	3:40p	3:45p	3:54p	3:59p	4:10p	-	-
-	-	-	-	-	-	4:15p	4:30p
4:35p	4:50p	4:55p	5:04p	5:09p	5:20p	5:25p	5:40p
5:45p	6:00p	6:05p	6:14p	6:19p	6:30p	6:35p	6:50p




	ROUTE 21 - COMMUNITY COLLEGE
	ROUTE 24 - VISTA PRIMERA
	Route 1
	Route 2
	Route 21
	Route 24
	Places of Interest
	Schools
	Time Points
	Colleges

Santa Fe Place Transit Center
 Routes

1 mi
1 km

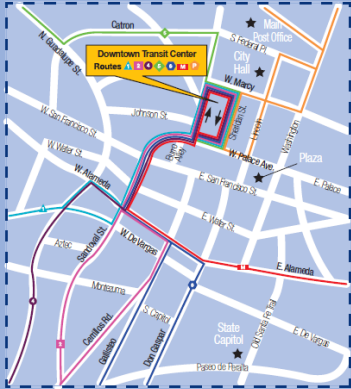
Route M

 ROUTE M - MUSEUM HILL					
WEEKDAY OUTBOUND			WEEKDAY INBOUND		
Downtown Transit Center 3	Camino Cabra & Cristo Rey 2	Museum Hill 1	Museum Hill 1	Camino Cabra & Cristo Rey 2	Downtown Transit Center 3
7:45a	7:52a	8:03a	8:05a	8:11a	8:23a
8:30a	8:37a	8:48a	8:50a	8:56a	9:08a
9:15a	9:22a	9:33a	9:35a	9:41a	9:53a
10:00a	10:07a	10:18a	10:20a	10:26a	10:38a
10:45a	10:52a	11:03a	11:05a	11:11a	11:23a
11:30a	11:37a	11:48a	11:50a	11:56a	12:08p
12:15p	12:22p	12:33p	12:35p	12:41p	12:53p
1:00p	1:07p	1:18p	1:20p	1:26p	1:38p
1:45p	1:52p	2:03p	2:05p	2:11p	2:23p
2:30p	2:37p	2:48p	2:50p	2:56p	3:08p
3:15p	3:22p	3:33p	3:35p	3:41p	3:53p
4:00p	4:07p	4:18p	4:20p	4:26p	4:38p
4:45p	4:52p	5:03p	5:05p	5:11p	5:23p
5:30p	5:37p	5:48p	5:50p	5:56p	6:08p
6:15p	6:22p	6:33p	6:35p	6:41p	6:53p
7:00p	7:07p	7:18p	7:20p	7:26p	7:38p
SATURDAY/SUNDAY OUTBOUND			SATURDAY/SUNDAY INBOUND		
Downtown Transit Center 3	Camino Cabra & Cristo Rey 2	Museum Hill 1	Museum Hill 1	Camino Cabra & Cristo Rey 2	Downtown Transit Center 3
10:10a	10:17a	10:28a	10:30a	10:36a	10:48a
10:55a	11:02a	11:13a	11:15a	11:21a	11:33a
11:40a	11:47a	11:58a	12:00p	12:06p	12:18p
12:25p	12:32p	12:43p	12:45p	12:51p	1:03p
1:10p	1:17p	1:28p	1:30p	1:36p	1:48p
1:55p	2:02p	2:13p	2:15p	2:21p	2:33p
2:40p	2:47p	2:58p	3:00p	3:06p	3:18p
3:25p	3:32p	3:43p	3:45p	3:51p	4:03p
4:10p	4:17p	4:28p	4:30p	4:36p	4:48p
4:55p	5:02p	5:13p	5:15p	5:21p	5:33p

ROUTE M MUSEUM HILL

- Route 1
- Route 2
- Route 4
- Route 5
- Route 6
- Route M
- Route P

- Places of Interest
 - Schools
 - Time Points
 - Colleges
- SANTA FE TRAILS



Route P

***The City of Santa Fe Parking Division
currently provides transportation on Route P –
CHAD (City Hall and Downtown) Park and Shuttle.***

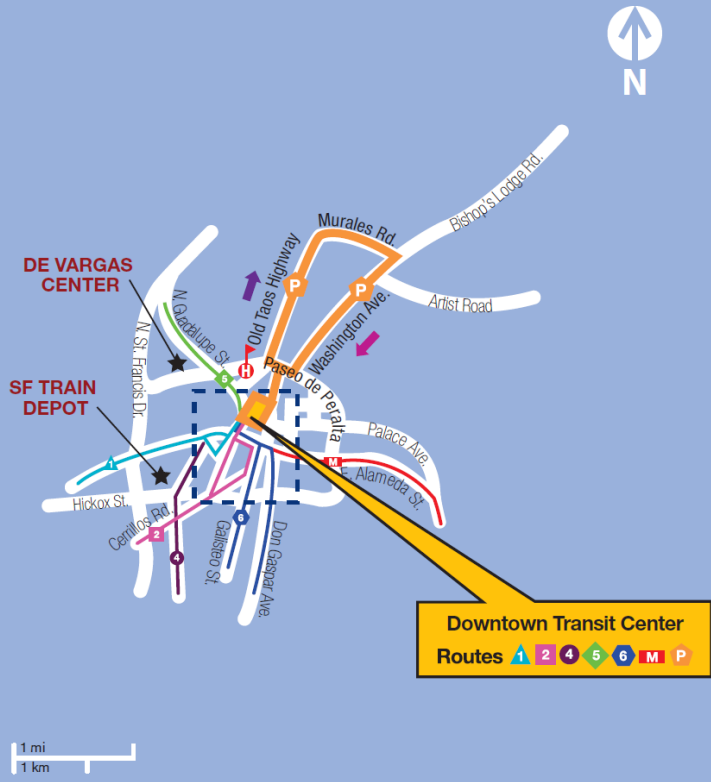
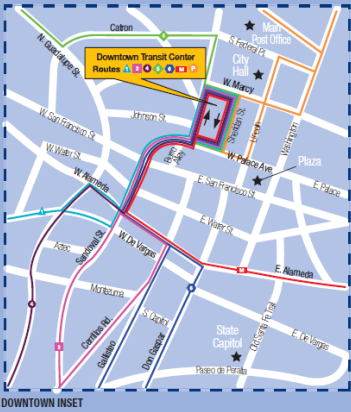
***This service runs continuously every 10 minutes
or on demand beginning at 6:30 a.m. and ending at 6:30 p.m.
Monday through Friday.***

***For more information on Route P, please call
the Parking Division at 955-6581.***



ROUTE P CHAD PARK & SHUTTLE

- | | | | |
|--|---------|--|--------------------|
| | Route 1 | | Places of Interest |
| | Route 2 | | Schools |
| | Route 4 | | In bound |
| | Route 5 | | Out bound |
| | Route 6 | | SANTA FE TRAILS |
| | Route M | | |
| | Route P | | |



Bus Fares

Fares

	By Trip	30-Day Pass	1-Day Pass
Adult (18 through 59)	\$1.00	\$20.00	\$2.00
(See Half-Fare Program)			
Senior Citizens (60 and older)	\$.50	\$10.00	\$1.00
Valid Medicare recipients	\$.50	\$10.00	\$1.00
Disabled- w/Santa Fe Ride Card Certification	\$.50	\$10.00	\$1.00
Youth (5 through 17)	\$.50	\$10.00	\$1.00
Under 5 years (w/paying adult)	FREE	FREE	FREE

Train Weekday Schedule

N E W M E X I C O

RAIL RUNNER

E X P R E S S

Monday - Friday Schedule

Effective December 17, 2008

NORTHBOUND

Train number	#500	#502	#504	#506	#508	#510	#512	#514	#516	#518	#520	#522	#524
Belen	---	---	---	5:40A	6:50A	7:56A	---	2:00P	---	---	5:35P	6:42P	7:40P
Los Lunas	---	---	4:50A	5:50A	7:01A	8:07A	---	2:12P	---	---	5:47P	6:54P	7:52P
Isleta Pueblo	---	---	5:03A	6:05A	7:15A	8:22A	---	2:26P	---	---	6:03P	7:10P	8:06P
Bernalillo Co./ Int'l Sunport	---	---	5:10A	6:11A	7:21A	8:28A	---	2:33P	---	---	6:09P	7:16P	8:12P
Downtown Albuquerque	4:23A	5:05A	5:21A	6:23A	7:33A	arrives 8:37A	10:37A	arrives 2:41P	4:15P	5:21P	6:35P	arrives 7:25P	arrives 8:21P
Los Ranchos/ Journal Center	4:35A	5:17A	5:33A	6:35A	7:45A	---	10:49A	---	4:26P	5:33P	6:47P	---	---
Downtown Bernalillo	---	5:29A	---	---	---	---	11:03A	---	4:40P	5:47P	7:02P	---	---
Sandoval Co./ US 550	4:49A	arrives 5:50A	5:47A	6:49A	7:59A	---	11:08A	---	4:45P	5:52P	7:06P	---	---
South Capitol	5:40A	---	6:37A	7:39A	8:49A	---	11:59A	---	5:41P	6:46P	7:57P	---	---
Santa Fe Depot	arrives 5:45A	---	arrives 6:42A	arrives 7:44A	arrives 8:54A	---	arrives 12:05P	---	arrives 5:46P	arrives 6:51P	arrives 8:02P	---	---

SOUTHBOUND

Train number	#501	#503	#505	#507	#509	#511	#513	#515	#517	#519	#521
Santa Fe Depot	---	6:10A	---	7:12A	11:30A	4:10P	---	5:17P	6:18P	8:15P	9:30P
South Capitol	---	6:15A	---	7:17A	11:35A	4:15P	---	5:22P	6:23P	8:20P	9:35P
Sandoval Co./ US 550	6:00A	7:10A	---	8:12A	12:28P	5:05P	---	6:12P	7:21P	9:11P	10:25P
Downtown Bernalillo	6:03A	7:14A	---	8:17A	12:34P	---	---	---	---	9:16P	10:30P
Los Ranchos/ Journal Center	6:18A	7:29A	---	8:32A	12:48P	5:20P	---	6:27P	7:36P	9:30P	10:45P
Downtown Albuquerque	arrives 6:30A	arrives 7:41A	6:47A	arrives 8:43A	1:03P	5:35P	4:25P	6:42P	arrives 7:48P	arrives 9:42P	arrives 10:57P
Bernalillo Co./ Int'l Sunport	---	---	6:56A	---	1:12P	5:44P	4:34P	6:51P	---	---	---
Isleta Pueblo	---	---	7:02A	---	1:18P	5:50P	4:40P	6:57P	---	---	---
Los Lunas	---	---	7:18A	---	1:32P	6:04P	4:54P	7:11P	---	---	---
Belen	---	---	arrives 7:30A	---	arrives 1:44P	arrives 6:16P	arrives 5:06P	arrives 7:23P	---	---	---

Shown are departure times, unless otherwise noted.

--- means train does not stop.

Reading the Schedule

1. Decide whether you are going north (schedule at top) or south (schedule at bottom)
2. On the left-hand side, find the station you are leaving from

3. Read across to find the times the Rail Runner departs from that station
4. From there, read down to find what time the Rail Runner will arrive at the station to which you are going

(866) 795-RAIL (7245)



www.nmrailrunner.com

Train Saturday Schedule

N E W M E X I C O

RAIL RUNNER

E X P R E S S

SATURDAY SCHEDULE

effective February 28th, 2009

NORTHBOUND

Train number	#500	#502	#504	#506	#508	#510	#512
Belen	---	9:03A	10:48A	1:58P	3:47P	7:00P	8:45P
Los Lunas	---	9:15A	11:00A	2:10P	3:59P	7:12P	8:57P
Isleta Pueblo	---	9:30A	11:14A	2:23P	4:13P	7:28P	9:11P
Bernalillo Co./ Int'l Sunport	---	9:36A	11:20A	2:31P	4:19P	7:34P	9:17P
Downtown Albuquerque	6:20A	9:49A	11:32A	2:46P	4:31P	7:46P	arrives 9:26P
Los Ranchos/ Journal Center	6:32A	10:01A	11:44A	2:58P	4:43P	7:58P	
Downtown Bernalillo	6:47A	10:15A	11:58A	3:13P	4:57P	8:13P	
Sandoval Co./ US 550	6:52A	10:20A	12:04P	3:17P	5:02P	8:18P	
South Capitol	7:41A	11:10A	12:59P	4:07P	5:58P	9:07P	
Santa Fe Depot	arrives 7:46A	arrives 11:15A	arrives 1:04P	arrives 4:12P	arrives 6:03P	arrives 9:12P	

*Shown are departure times,
unless otherwise noted.
--- means train does not stop.*

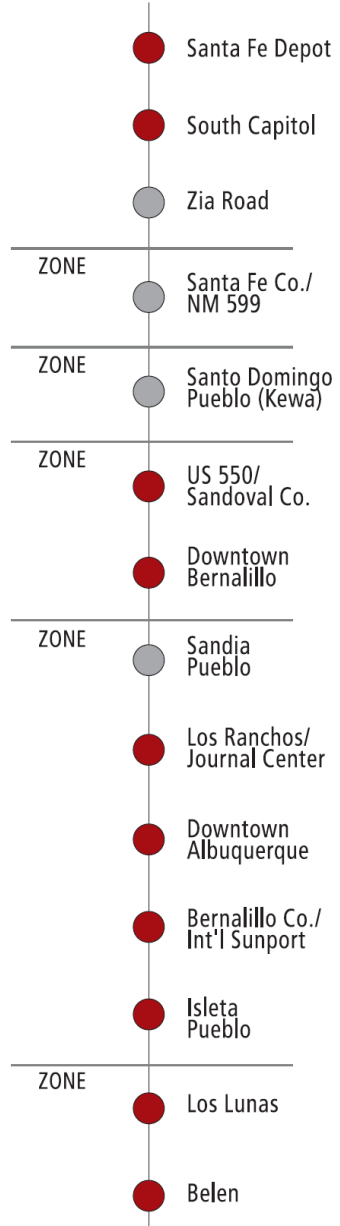
SOUTHBOUND

Train number	#503	#505	#507	#509	#511	#513
Santa Fe Depot	8:10A	11:30A	1:20P	4:30P	6:20P	10:00P
South Capitol	8:15A	11:35A	1:24P	4:34P	6:24P	10:05P
Sandoval Co./ US 550	9:04A	12:24P	2:14P	5:24P	7:14P	11:00P
Downtown Bernalillo	9:10A	12:30P	2:20P	5:30P	7:20P	11:05P
Los Ranchos/ Journal Center	9:24A	12:44P	2:34P	5:44P	7:34P	11:17P
Downtown Albuquerque	9:39A	1:00P	2:49P	5:59P	7:49P	11:35P
Bernalillo Co./ Int'l Sunport	9:48A	1:09P	2:58P	6:08P	7:58P	11:43P
Isleta Pueblo	9:54A	1:14P	3:04P	6:14P	8:04P	11:50P
Los Lunas	10:10A	1:30P	3:20P	6:30P	8:20P	12:06A
Belen	arrives 10:22A	arrives 1:42P	arrives 3:32P	arrives 6:42P	arrives 8:32P	arrives 12:18A

**PLEASE NOTE THAT
REDUCED FARES APPLY
ON SATURDAYS**



ZONE-BASED FARES



HOW TO CALCULATE YOUR FARE

Step 1: Count the number of zones
 Count the number of zones through which you will travel. For example: traveling from Downtown Albuquerque to the Santa Fe Depot is 5 zones; traveling from Belen to Downtown Albuquerque is 2 zones; traveling from Sandoval Co./US 550 to the South Capitol Station is 4 zones.

Step 2: Pick the type of fare you need
 Do you want a one-way ticket, a day pass, or a monthly or annual pass? Are you eligible for a reduced fare?

Step 3: Check the chart below and see how much your fare is

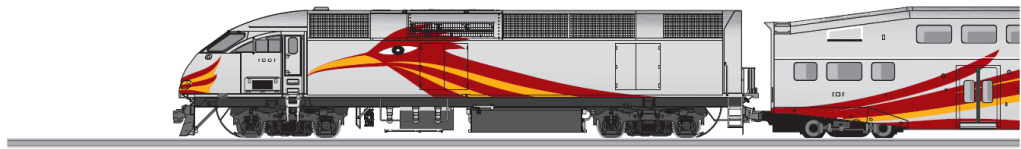
FULL FARE

number of zones traveled	one-way	day pass	monthly pass	annual pass
1 zone	\$1	\$2	\$35	\$350
2 zones	\$2	\$3	\$50	\$500
3 zones	\$3	\$4	\$65	\$650
4 zones	\$5	\$7	\$95	\$950
5 zones	\$6	\$8	\$100	\$1000
6 zones	\$7	\$9	\$110	\$1100

REDUCED FARE*

number of zones traveled	one-way	day pass	monthly pass	annual pass
1 zone	\$1	\$1	\$17	\$170
2 zones	\$1	\$2	\$25	\$250
3 zones	\$2	\$3	\$32	\$320
4 zones	\$3	\$5	\$47	\$470
5 zones	\$4	\$6	\$50	\$500
6 zones	\$5	\$7	\$55	\$550

* Reduced fares are available to Senior Citizens 65 and over, students with a valid ID or proof of enrollment, and people with disabilities. Children under 10 ride free.



7.7 APPENDIX G: Housing Contacts

Since we, as students, could not represent WPI directly, we could only objectively assess the housing options open to the IGSD. After speaking with an IGSD representative, it was concluded that the best course of action was to simply hire a realtor. A list of appropriate realtors has been made.

Santa Fe Association of Realtors [1]

Santa Fe Association of Realtors® · 510 N. Guadalupe St., Suite E · Santa Fe, NM 87501

Phone: 505-982-8385 · Fax: 505-982-3764 · Email: info@sfar.com ·

Website: <http://www.sfar.com/>

Santa Fe Properties [2]

Santa Fe Properties' main offices are located at 1000 Paseo de Peralta, Santa Fe, New Mexico, 87501 · Other Santa Fe Properties offices are located at 320 Paseo de Peralta, and 644 Paseo de Peralta in Santa Fe

Phone: 1-800-374-2931

Website: <http://www.santafeproperties.com/>

Chapelle Vacation Rentals Santa Fe[†]

209 Chapelle, Santa Fe, NM[†]

Phone: (866) 476-1091

Kokopelli Management [3]

607 Old Santa Fe Trail, Santa Fe, NM[†]

Phone: (505) 983-1771

Luna Luz Properties Llc[†][4]

316 Garfield St, Santa Fe, NM[†]

Phone: (505) 820-6977[†]

Casita De Los Cornell Apartments[†][2]

211 W Water St, Santa Fe, NM[†]

Phone: (505) 988-1815[†]

Casas de Santa Fe[†][2]

204 N Guadalupe St, Santa Fe, NM[†]

Phone: (800) 363-9810[†]

Luxury Casita of Santa Fe (Guadalupe Compound[†]) [2]

132 Duran St, Santa Fe, NM[†]

Phone: (505) 471-676

7.8 APPENDIX H: Housing Data Sets

SIMPLE DATA SETS

Results filtered so that no apartment would have less than 4 beds, a close proximity to the town center railyard, and that the monthly rent per person is not higher than \$800/month.

Data Set:

[#][cost]	/[suggested occupancy]	\$/[cost/occupant]
1 \$3,400	/6	\$ 550
2 \$1,750	/6	\$ 300
Total:	/12	
Average:	/6	\$ 425

Detailed Data Set:

Data Taken from The Santa Fe Association of Realtors [1] on 4/17/2009, and is included on the next page.

DETAILED DATA SETS

Sample rents taken from The Santa Fe Association of Realtors [1] on 4/17/2009
MONTHLY RENT: \$3,400 (plus gas/electric) ADDRESS: 731 E. Zia FULLY FURNISHED
BEDROOMS: 2 + BATHS: 3 SQUARE FEET: 2450 +/- Call for Availability SHORT/LONG
TERM Modern country living in this completely renovated home w/ decorator finishes; sleeps 6; separate office; landscaped flower gardens & mt. views; tile, brick & wood flooring; modern kitchen w/ stainless-steel Jenn-Air & Asko appliances; master suite w/ Asian-inspired linens, private sitting room & luxurious bath; high speed internet, water, refuse, cable is included; minutes to the Plaza, the Railyard; For availability, pictures & more info., please visit Short Term listings on the website: <http://www.stclair-properties.com> or call St. Clair Properties at 505.955.1999.

MONTHLY RENT: \$1,750 (Utilities Included) ADDRESS: 211 Rosario #17 FULLY
FURNISHED BEDROOMS: 2 BATHS: 2.5 AVAILABLE: Call for Availability 30 Day
Minimum Stay This 2 story home is within walking distance to everything downtown Santa Fe has to offer including Indian Market! Sleeps 6 comfortably and comes with a Queen bed, a Trundle bed, and a sleeper sofa. There are Saltillo tiled floors throughout, a kiva fireplace, vigas, wood blinds and a great kitchen with gas cooking and nice tiled countertops and a private patio. You will also have high-speed wireless internet access and cable television. Security Deposit \$1,700. For availability, pictures & more information please visit Short Term listings on the website: <http://www.StClair-Properties.com> or call 505.955.1999.

7.9 APPENDIX I: INTERVIEW CHECKLIST

Basic Information that must be known before interviewing

- K1. Name of Interviewee, first and last
- K2. Occupation or Position within Organization
- K3. Name of Organization, if any
- K4. Basics of how the individual or organization can benefit WPI and vice versa
- K5. Amount of formality to be expected in the interview
- K6. Initial level of interest in the project center

Outline of Interview

Introduction

Regardless of formality refer to self with full name,

Address Interviewee by last name.

Begin Basic Questions

Q1. "Do you have any questions regarding who we are/what we are doing?"

-(What exactly do they want to know? They will not know everything, but you will not need to tell them everything)

-When introducing, begin with The Big Picture (a description of WPI) and end with You and what You are doing and how You can assist the Interviewee.

-for example "Worcester Polytechnic Institute is an engineering school that bases its curriculum on project-based learning. Every student is required to complete a series of projects that use technology to solve a real social issue within a community. We have dozens of project centers all around the world, with students solving real world problems.

Now, due to the growing number of accepted students, more project centers are being created and developed. We are determining the feasibility of a project center in Santa Fe, and are looking for project sponsors for potential projects that could be completed by our students. We feel that you could be one of those sponsors."

In addition to the basic introduction, if the interview pertains to a Mini-IQP, explain the Mini-IQP and how the interviewee relates to it

Q?. [Topical questions relating to the interviewee, at least one]

Interviews should be split into topics, the relative topic should be determined by [K4]

Social/Urban

Q. "What sort of social issues do you think exist in Santa Fe?"

Environmental/Water

Q. "What is the most important issue concerning water in Santa Fe?"

Artistic/Artists

Q. "In what way do you think someone with a technological background could help you with implementing your art?"

Additional questions should be prepared relative to the Interviewees relation to the IQP and Mini-IQPs.

At the End of the Interview

(If they have not mentioned any possible projects offhand which you could inquire further.)

Q2. "Is there anything you are working on that you feel would appropriately fit into the constructs of our project system?"

-(Remember to ask them to expand on anything that you don't understand.)

-If they cannot think of any.

Q2.1. "Could you tell us a little about what you are planning within the next year or so?"

Leaving the Interview

-Thank them for your time.

Q3. "Could you suggest any other companies or individuals which might be interested?"

Questions they may ask you.

"Why Santa Fe?"

Though there are numerous IQP centers, only two are in the domestic United States (Boston and Washington, D.C.). We feel that Santa Fe provides an excellent addition to our existing project centers, because it is domestic, yet different enough to inspire interest in the students who would live here. It also has a host of technology in a communal setting which jives perfectly with the goal of the IQP.

7.10 APPENDIX J: Email Template

Mr./Ms./Miss/Mrs./Dr. (persons name),

We are a group of students from Worcester Polytechnic Institute in Worcester, MA. In our junior and senior years, we are required to complete two projects. The junior year project, called the interactive qualifying project, is intended for students to discover and appreciate the impact of science and technology on society. The senior year project, called the major qualifying project, is a technical project to prove a student's competency within his or her individual major field.

To support these mandatory projects, WPI operates project centers all around the world. We are exploring the possibility of creating a project center in Santa Fe, NM. We feel that [the work your organization is doing] would translate directly into projects which would be mutually beneficial to [you] and the students of WPI. If you are interested we would like to set up a meeting to discuss potential projects at your earliest convenience.

For more information, please follow the links below for a better description of Worcester Polytechnic Institute's Global Perspective Program.

Regards,
(your name)
(sign off)

Description of Interactive Qualifying Project

(<http://www.wpi.edu/Academics/Depts/IGSD/IQP/>)

Library of previous projects (<http://www.wpi.edu/Academics/Library/Collections/Projects/>)

Our Project Blog (<http://santafebootstrap.blogspot.com/>)

Our Project Wiki

(http://sfcomplex.org/adobewiki/index.php?title=WPI:Santa_Fe_Project_Center)

WPI (<http://www.wpi.edu/>)

WPI Interdisciplinary Global Studies Division (<http://www.wpi.edu/Academics/Depts/IGSD/>)

7.11 APPENDIX K: Restaurants

There are a wide variety of restaurants in Santa Fe. You can find Italian to Japanese, Hispanic to Thai food. The prices vary in range as well, but a student can expect to pay on average \$20 a person when dining out. Below are some reviews we wrote about our favorite restaurants.

Pranzo Italian Bar and Grill

If you are looking for absolutely amazing Italian food within walking distance of the Complex the best place to go is Pranzo. For about \$15 per a person you can get a spectacular array of Italian food. For appetizers we tried the minestrone soup, and the fried calamari. Both were good, but the calamari was the better of the two as it came with two different sauces. a garlic butter sauce and a spicy sauce. Both complimented the appetizer spectacularly. For meals we ordered a wide variety of food including a tender juicy steak, raviolis, pasta with meatballs, and two different kinds of pizza. The best meal was by far the Pizza Funghi, everyone at the table thoroughly enjoyed it. We haven't eaten desert very many places, but of the places that we have, I enjoy Pranzo the most. It is the only place we have been that has not a micro-brewery, but a micro-creamery. They make their own ice cream and it is exceptional. Thus far, we have sampled the Cinnamon, the Black Raspberry, the Caramel Praline, and the Vanilla Bean. All of them were quite good, with Caramel Praline being my personal favorite. The entire menu can be downloaded from [here](#).

Zia Diner

Zia Diner offers a wide selection of food encompassing both the native Santa Fe diet as well as a multitude of other ethnic foods. It is open 7AM-10PM daily. So far the group favorite is the breakfast burrito, Christmas style, which you can find on the online menu found ([here](#)). We also seemed to enjoy the gingerbread and pumpkin spice milkshakes. Although it does cost five dollars it can be shared by multiple people. The entire menu can be downloaded [here](#)

The Cowgirl

The Cowgirl is a mix of Texas style BBQ with Santa Fe spice. The Buffalo burger is not spicy! There is a cover charge of \$3.00 to get into the bar, but there are ways around that. On Tuesday nights, the Cowgirl features techno, deals on food, and more. Although there was no green beer on St. Patrick's Day, it was still a very festive atmosphere. The Cowgirl menus can be found [here](#).

The Station Cafe

No more than a few minutes walk from the Complex is the Station Cafe, located of course in the rail yard right next to the train station. Though it is quaint and cozy, the owner is a wonderfully kind person who always caters to us as we stumble in just before closing time. The coffee is exceptionally brewed, and the sandwiches and desserts are simply delicious.

7.12 APPENDIX L: Tourist Activities

One of the reasons students choose to go off campus to complete their IQP is to experience a new culture and partake in new activities they might not be able to do in MA. Santa Fe offers a wide variety of new and interesting activities, many of which were very inexpensive, or even free for students. Below are a list of different activities the members of the bootstrap team were lucky enough to partake in.

Camping

Our campground was located at Hyde State Park just 8 miles out of Santa Fe, via Hyde Park Road. The drive, while short, afforded a drastic change in scenery. Buildings turned into sprawling aspen trees and sounds of traffic gave way to the sounds of a babbling brook.

Overall it was a cold, yet pleasant experience. I very much look forward to doing it again sometime.

Arts Lab

Let's use our imaginations for a second and imagine if you were one of the first explorers of the new world, and say you came across the fabled City of Gold. You're standing in the middle of their equivalent of their town square, and gold surrounds you. The material that you were told from birth to be the rarest material in the world is the most common thing in sight. The thing that your civilization has stolen, lied, and killed for is paved into the roads. Here it is gold, not Gold. It's woven into the threads of rags, people are dusting it off of their feet so as to not track it into their homes. It is so commonly valueless to the inhabitants that they don't even need to offer it to you. You can just take it. It is their dirt. Take a moment to dwell on this. Now replace that gold with the concepts of creative potential, intellectual capability, and modern technological resources.

This is an accurate description of what we found at ARTS Lab

We went down to Albuquerque by train to pick up the car that was left by our Gracious Adviser that morning. We decided to spend the day in Albuquerque, starting with lunch at the Flying Star Cafe. During our meal of assorted cheeses (Grilled, Mac'n', and Cream), Simon suggested that we start by visiting ARTS Lab that happened to just be down the road. The external portion of the building was rather unimpressive, it felt like we were approaching the undecorated rear of a supermarket. Once inside, however. Supercomputer Clusters! Green Screen Movie Sets! Fully Functional Miniature Planetariums!

And the people! Remember that metaphor that I mentioned at the beginning. They were beyond eager to help and give us full access to every part of their facilities. Though officially part of UNM, they had difficulty generating participation in the student body. "I think it's because it's so unapproachable," Said Joe Dean, "but really, we love it when people come in with

suggestions or ideas." He then returned to work on a new Planetarium presentation on a Quadcore monolith with 16 GB of RAM, one of the slower computers in the Lab. We visited other parts of the lab, talked to really interesting people, sat under the planetarium dome, gawked at their (shockingly impressive but shamefully unused) Supercomputing Server Cluster and before we knew it the day had gone. We left that day full of new business cards and hope. This was certainly the most incredible potential contact for an IQP project center yet!

Our only regret about the entire experience is that we didn't bring a camera. Oh well, guess we have to go back!

Acequia Dig

An Acequia, as I'm sure you all know by now, is an ancient irrigation method that dates back to the Spanish colonization of the southwest. They allowed the first towns and cities in New Mexico to be sustainable, and in many ways still shape the society today. Every year the ditches must be cleared, and everyone in the local rural community participates in one way or another. But enough of the history lesson, back to us. We rose from our respective beds at around 7:30, rubbed our eyes, dressed, rubbed our eyes again, and got into the car to drive the half hour to the La Cienega Acequia. The digging was already well underway, with about 30 to 40 locals already digging up and down the Acequia. It was a surprisingly brisk morning, almost in the 60s and yet still very dry. We were handed gloves and footed boots. We picked up our sharpened shovels and walked to the nearest undug section of the ditch. The dry earth was thick with the roots of grass, which other than the branches was the main thing being removed from the ditch-about three inches of soil needed to be dug out from the bottom. The walls of the ditch also needed to be made steeper, which in turn made it more difficult to climb out. The dry clay earth yielded effortlessly to the plunging blade of the shovel, resisting only slightly to being forced over and out the ditch.

Then the water began. As the earth grew wet the once easy dirt septupled in weight, the ground gave under the back of the shovel eliminating all hope of leverage, and even the grassroots seemed deeper and harder. The mud sucked at your boots, making it difficult to take even a single step, and the wet slope meant embarrassing moments of heaving a chunk of earth the size of a large sandwich but with the weight of half a bowling ball to the edge of the ditch, only to see it slide back down again instantly becoming one with the mud once more. From More Santa Fe Bootstrap photos

The mud splashed and flecked on our clothes, not excessively, but noticeably. Mud caked on gloves from simply taking the larger chunks of dirt and heaving them out of the ditch by hand. It was a clean mud, a pure mud. Mud that felt good getting on yourself. From More Santa Fe Bootstrap photos

The natives were quiet most of the time around us, but talked amongst themselves while digging, usually about digging. They talked about how some of the northern acequias had finer, drier soil and could shovel more easily, and some more mountainous acequias had pine trees running up and down their ditch, whose roots made the digging magnitudes more difficult. There were mixed reactions to us, outsiders, helping them in this annual ritual. Some snorted at our efforts to clear the ditch, others simply looked past us, but a few were welcoming and empathetic

towards our novice ability. In the end our action was treated with the gratitude of an unnecessary favor from a stranger. A "Gee, thanks..." feeling. From More Santa Fe Bootstrap photos

Nevertheless, we managed to finish 45 minutes early, having dug all the way to the reservoir that fed the Acequia. There was no cheering or outward celebration, but more of just a nod, looking back at what we did, what we all helped do, and knowing it was finished. We all climbed in the back of several trucks and drove to the La Cienega Community Center, where a workers meal was prepared by the women. The potluck was delicious, added to by the fatigue of hours of digging. The Mayordomo made a short speech where thanked everyone for helping and complimented everyone on the state of the Acequia. He hoped to see them all next year with just as much effort. Then people finished eating and simply left. We followed suit. Grabbing our shoes, getting in the car, driving away, showering at home, and climbing back into bed. The act was wholesome and even a little therapeutic. We knew we had engaged in something difficult and necessary, and as we lay down we knew we had done well that day.

First Fractal Friday

According to their website "First Friday Fractals is the spectacular, award-winning full-dome planetarium show that takes viewers on a tour of the fractals in nature and zooms through infinitely complex mathematical fractals. Featuring original music, the show is both educational and highly entertaining, and suitable for audiences 3 and up." Located at The New Mexico Museum of Natural History planetarium, it is a simple train ride away. This show is a must see.

MeowWolf

Meow Wolf is a self-defined artist collective off of second street that deals in a lot of performance and location art, and their studio does not leave a lot not to the imagination. Initials BR opened with a slurred but intricate rap sequence. The music streaming on his website was much clearer than how he sang at Meow Wolf, but it's more the music that you allow to wash over you in waves of syllables, which was certainly the experience tonight. We Drew Lightning followed, but since they do not exist at all on the Internet they are not worth mentioning other than their presence. Microfiche closed the evening with music that can only be experienced. The night was cold, but the place was warm, the people fun, and the music great.

Ojo Caliente

Ojo Caliente Hot Springs lies a little more than an hour out of Santa Fe and has been regarded as a sacred healing place by many Native American tribes for hundreds, if not thousands of years. At some point after colonization the inhabitants evolved it into a very lovely spa. As you can see from the previous posts we concluded that all of the stress from meetings and Acequia tours and skiing and St. Patty's Day celebrations was really getting to us, so we decided to treat ourselves to a bit of mud.

After arriving, we paid an entrance fee equivalent to most theme parks, showered, and entered the main area. A quiet place with "Whispering Only" signs omnipresent, it first appeared to be an overdecorated private pool. We split off into groups and entered the different enclosed bathing pools, of which there were several. The one I entered first appeared very popular, including a description that bathing in this particular pool would help in digestive problems, improve your skin complexion, cure all ailments and boost your vitality and wisdom by one point each. I felt I couldn't pass the opportunity up.

Like most great things, the experience was vivid in the way that is not easy to describe. I initially approached the idea of Ojo Caliente with a reluctant distrust, but after losing track of the minutes spent submerged in mana-replenishing minerals I didn't want to get out.

The mud bath was out of order at the time, but the soda bath was working just fine. As were the arsenic baths and the natural water pools. Each provided a slightly different temperature to treat you in, varying from tepid to almost unbearably hot. Each pool also provided a slightly different flavor, though I could not conclude if that was solely the effect of the natural spring or the bathers therein.

The gang reconvened at the largest pool, which felt the coldest at the time, due of course to our somatosensory system and it's foolish, foolish thermoreceptors.

We also spent a good while in the hammocks strung around the place, sweated in the steam rooms and saunas, and the bravest of us actually drank from the hand pump in the middle of the spring, which had signs that stated the spring has been believed for hundreds of years to hold healing properties for those who drink it (but the establishment and administration is not responsible for any adverse health effects resulting from the imbibing of the spring). Sam, our food and restaurant critic, described the taste eloquently as "warm ass".

Overall, Ojo Caliente is a great place for people who think they have to pay for something to relax, as well as for people who think they don't.

Skiing

Ski Santa Fe Renting Skis, poles, and boots: \$22 Half Day Afternoon Lift Pass: \$42 Lunch at Totemoff's Bar and Grill, 2 hot dogs, a 20 oz soda, one snickers, and a large hot chocolate, about \$15, you should remember there is nothing preventing you from bringing your own food and drinks. Spring Time skiing, according to overheard conversations is generally better in the morning as the sun hasn't had time to partially melt the snow. While I am far from a professional skiers, before yesterday it had been roughly 6 years since I had last went skiing, I did manage to try three of the four difficulty levels available at Ski Santa Fe.

Green Circle Trails, for those unfamiliar with the standard rating of ski trails, are considered the first step up from practicing on the bunny hill. Along these routes you will generally see the most inexperienced skiers on the mountain and as such you should expect to have a rather slow trip down the mountain, for those who are out of practice taking a short run down a green trail may be a safe way to re-acclimate to the sport. Traveling down the Santa Fe Trail you are provided with ample opportunities to explore blue square and black diamond trails.

Blue Square trails are the next progression of ski trail difficulty, while the trails are generally smooth, they are steeper and still filled with a decent number of other skiers and as such your main challenge will be avoiding colliding with others. The Gay Way trail was decently paced and at least for a Thursday afternoon, relatively unoccupied. Like the Santa Fe Trail, Gay Way trail connects with both higher and lower difficulty level trails if you choose to diversify.

Black Diamond Trails are considered the hardest trails non professional skiers should attempt, at Ski Santa Fe the most defining trait of Black Diamond trails that was seen were moguls, and for any skier who has never had to use moguls before, it is apparent that they are in no way your friend.

7.13 APPENDIX M: Events at the Complex

Complexity

This afternoon, Stephen presented some basic methods and background of complexity software. A freeware program that accomplishes this is NetLogo. JP recommended that the Acequia mini-IQP group download this program and complete the tutorial, though it would probably be beneficial for all six of us. The complexity discussion will continue each Wednesday at 2:20 in the SF Complex Commons. We then progressed into an Arts Meeting led by Orlando where Ahni from Spaces for Peace presented the objectives of Spaces for Peace. It is mainly a peace and arts literacy project that could possibly be integrated into the SF Complex Mission.

Manipulated Images

Last night's presentation was a visual extravaganza with just about every technological visual representation imaginable. I'm not going to lie, I didn't understand a large portion of what was going on. I assume that it's because I'm uncultured. A lot of the videos I felt could have stood to be shorter. TV On The Radio "Staring At The Sun" from benton-c bainbridge on Vimeo. There were 5 artists showcased, 3 of them local artists. Susanna Carlisle, David Stout, and Cory Metcalf were among the local artists featured, and the other 2 artists, Matt Marelllo and Benton C. Bainbridge.

Artificial General Intelligence

Artificial general intelligence is a minute field compared to many others, but it can also be described as a very important field. In a nutshell, artificial general intelligence strays from the field of artificial intelligence in that people in the field believe that in order for something to be intelligent, it needs to have some specific set of values. Unfortunately not many people agree on what those values are.

One thing that was made very clear by Dr. Pei Wang is that though it is a small field there are many differing opinions. To be specific, Dr. Wang divides the fields of thought into 5 different categories;

- People who believe that something intelligent must look and act like a human being
- People who believe that something intelligent must act human
- People who believe that something intelligent must be able to solve logical problems
- People who believe that something intelligent must have cognitive faculties
- People who believe that something intelligent must obey rational norms

Furthermore, even the people who do agree on the definition of intelligence have different ways of going about achieving their goals.

- Connecting existing artificial intelligence techniques together
- To combine modules based on other techniques into an overall architecture

- To extend or augment a core technique into a single system

This may seem confusing, and that's because it is. Dr. Wang went on to give many examples of each of these, but I will just talk about Dr. Wang's research. His project is called NARS, or Non-Axiomatic Reasoning System. The basic premise is that it is a reasoning system with the capability to learn from mistakes.

Dr. Wang jokingly said that he is often proud of his system when it makes a mistake, because then it can learn from it. This is an interesting concept because, as was stated at the lecture, the system often resembles the learning of a toddler. For example, a toddler might make the incorrect assumption that, since an entire family wears glasses, and he does not, he is not a part of the family. There is logic behind this assumption, even though it is untrue.

One of the things that makes a system able to do this learning, is the implementation of defeasible reasoning. This is where one can say that if x is true, then it stands to reason that y would also be true. The difference between that and the deductive reasoning system that had been used in the past is that there is a chance that a computer's deductions are untrue. This makes many more things possible than were before, because a computer has the chance to amend its previous assumptions.

A New Geometry

Experiencing the works of Michael Leyton, is an example of reasonable intelligence and over developed ego. Presenting on the concept of symmetry in geometry and how art was a method of data storage. While the opening explanations of how complex symmetry was defined in geometric objects, the remainder of the presentation dealt way too much with the speakers ego to be truly appealing.

7.14 APPENDIX N: Requirements for Business Registration

PERTINENT INFORMATION

REQUIREMENTS WHEN REGISTERING/LICENSING YOUR BUSINESS

STARTING A NEW BUSINESS IN THE CITY OF SANTA FE:

1. It is best to begin the process for starting a new business by contacting the City of Santa Fe Inspection and Enforcement division in order to obtain a certificate of occupancy. You will be able to make arrangements for your inspections, inquire on the type of inspection that will be necessary, and verify any fees that will be due. The necessary paperwork for your inspections is available on the City of Santa Fe web page.
Inspections and Enforcement: (505) 955-6646
2. Businesses selling food item will also need to contact and acquire a food purveyor's permit from the State environment and health division. **Department of environment and health (505) 827-1840**
3. Print the business registration/license application that is on the City of Santa Fe web page. Complete the application including a CRS number and signature.
4. The application must have a current gross receipts tax number (CRS) in order to be processed. If you do not have a CRS number connect to the following link.
<http://www.state.nm.us/tax/forms/year99/crsforms.htm>.
Print and complete the CRS application. All information including a signature must be on the application.
5. Keep your applications until all inspections are final. Once your inspections have been completed you may come in person or contact the business registration and licensing office. *NOTE: Inspections are usually signed off the following day of the actual inspection. You may want to call the accounts receivable office to confirm.*
6. We are located on 200 Lincoln Ave. inside City Hall in the accounts receivable office, room 112. At this time we will process both your CRS application and your business application. The fee for the license will be \$35.00. Feel free to contact the accounts receivable office with any questions and or concerns.
Accounts Receivable Office (505) 955-6551

AQUIRING AN OUT OF CITY BUSINESS LICENSE:

1. Print the business registration/license application that is on the City of Santa Fe web page. Complete the application including a CRS number and signature.
2. The application must have a current gross receipts tax number (CRS) in order to be processed. If you do not have a CRS number connect to the following link.
<http://www.state.nm.us/tax/forms/year99/crsforms.htm>.
Print and complete the CRS application. All information including a signature must be on the application.
3. You may come in person or contact the business registration and licensing office. We are located on 200 Lincoln Ave. inside City Hall in the accounts receivable office, room 112. At

this time we will process both your CRS application and your business application. The fee will be \$10.00

4. Feel free to contact the accounts receivable office with any questions and or concerns.
Accounts Receivable Office (505) 955-6551

SPECIAL EVENTS LICENSING:

1. We request that anyone requiring a special event license first contact the sponsor of the event you wish to participate in. This will help verify space availability, as well as, what process we are using to license the event.
2. In most instances the sponsor will collect the applications and bring a bulk package of applications from all of their vendors to be licensed. Some of the smaller events will provide us with a list of who is allowed to be licensed for their event.
3. Once you have contacted the event sponsor you will know who is receiving the applications.
NOTE: PLEASE DO NOT FAX APPLICATIONS WITHOUT FIRST CONTACTING THE SPONSOR OR ACCOUNTS RECEIVABLE.
4. Print the special event license application that is on the City of Santa Fe web page. Complete the application including a CRS number and signature.
5. The application must have a current gross receipts tax number (CRS) in order to be processed. If you do not have a CRS number connect to the following link.
<http://www.state.nm.us/tax/forms/year99/crsforms.htm>
Print and complete the CRS application. All information including a signature must be on the application.
6. Attach the CRS application to the city business application and send it to the individual that will be collecting the applications.
7. Feel free to contact the accounts receivable office with any questions and or concerns.
Accounts Receivable Office (505) 955-6551

OTHER TYPES OF LICENSING (Specialty Licensing):

1. *Auctions, distressed merchandise sales, carnivals, circuses, armed private detectives, armed security guards*, will need to contact the accounts receivable office for further information on the requirements for such licenses.
2. Feel free to contact the accounts receivable office with any questions and or concerns.
Accounts Receivable Office (505) 955-6551