



**Smelting the Past, Refining the Future**  
*The Asarco Redevelopment Process*

Authored By

**Valeria Contreras**, Franklin High School

**Briana Pallares**, Ysleta High School

**José Parga**, Americas High School

**Christian Solis**, Fabens High School

**Abbey Cohen**, Austin College

*An in-depth study of brownfield redevelopment nationwide in order to make a formal recommendation for the development of the Asarco site. The report explores the best possible redevelopment options in order to optimize the local economy and quality of life.*

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A former center of industrial commerce and prosperity for the City of El Paso now lays dormant awaiting eventual demolition to make way for a new development. The site, the former home to the American Smelting and Refining Company, or Asarco, and its 828 smokestack, have been a part of the community since the 1800's. However, as the community expanded around the site, issues of pollution and other environmental concerns began to surface. Within the past few years, after failed attempts to reopen and begin to smelt copper again, the organization entered into Chapter 11 Bankruptcy and is currently awaiting clean-up and eventual redevelopment. While citizens are eager to see the site utilized in a better manner, debate over whether the stack should remain ensues, as do concerns that the land will never be "clean enough," coupled with the recommendation that the site be capped and left vacant, a "no man's land."<sup>1</sup> Through various local meetings, citizens have offered input as to what the site should become and whether the stack, while an icon of El Paso's past, has a place in El Paso's future.

The redevelopment input process has been lengthy and tedious and this report analyzes the options El Paso has for redeveloping the 120-acre smelter site.<sup>2</sup> Community Scholars has analyzed other brownfield redevelopment projects throughout the nation to analyze the impact such developments have had on the area's economy and quality of life. The research is a combination of ideas from Community Scholars as well as those put forth by El Paso citizens during the charette process. Community Scholars used various websites, personal interviews, public records and agency reports in order to support these findings. The following information is intended to create awareness in the community of the potential ideas for Asarco and its surrounding environs.

### **Asarco's Background**

In 1887 the Kansas City Consolidated Smelting and Refining Company helped Robert Safford Towne open a smelter in El Paso. Towne bought approximately 1,200 acres along the Rio Grande River to build the smelter. Five months after buying the property, a 100-foot smoke stack was built and began to process lead and copper ores. On April 4, 1899, Henry H. Rogers and Leonard Lewisohn founded the American Smelting and Refining Company which owned 11 other companies including Kansas City Consolidating.<sup>3</sup>

The evolution of the plant included the addition of the 828 foot smokestack that was an attempt to alleviate air pollution in El Paso. By 1985, after Asarco shut down the zinc and lead plant, the copper plant was the only facility left operating. By 1999, when the price of copper fell to under 60 cents per pound, the company decided to downsize operations in El Paso.<sup>4</sup> In 2005, Asarco filed for protection under Chapter 11 of the United States Bankruptcy Code. By filing for Chapter 11 bankruptcy, Asarco and its subsidiaries were expected to restructure the company and settle any contamination claims to a trust in order to become a profitable company again.<sup>5</sup> The Texas Sites Settlement Agreement resolved any disagreements associated with the past and potential future cleanup costs pertaining to the Asarco site. The agreement required the establishment of a trust to oversee the cleanup of the site. It transferred the property that Asarco

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<sup>1</sup> (Borunda, Hands-on Design Sessions for Asarco Today 2010)

<sup>2</sup> (Puga, Project Manager 2010)

<sup>3</sup> (Bascuas 2010)

<sup>4</sup> (Bascuas 2010)

<sup>5</sup> (Alix Partners No Date)

owned, but that was not in operation, to the trust. The State of Texas is overseeing this trust and is receiving the funds to support this process. The Environmental Protection Agency (EPA) is a signatory to this agreement.<sup>6</sup>

### **Remediation and Redevelopment Plan**

Under the settlement agreement, the Asarco smelter located in El Paso was placed in an environmental custodial trust.<sup>7</sup> The site is not managed or owned by the City of El Paso, but El Paso's City Council can impact what the site can be redeveloped into by enabling special zoning overlays.<sup>8</sup> For the redevelopment of this area, the Texas Commission on Environmental Quality (TCEQ) selected Project Navigator Ltd., represented by Roberto Puga as the Custodial Trustee for the El Paso site.<sup>9</sup> Project Navigator is an environmental project management and consulting firm. The firm has a high level of experience in brownfield site planning.<sup>10</sup> The word brownfield refers to a site where environmental problems jeopardize the redevelopment or the expansion of the property due to contamination.<sup>11</sup> To achieve success in project planning of brownfield sites, Project Navigator uses project management, remediation engineering, land planning, Geographical Information Systems and cost forecasting. The firm offers the following redevelopment services:

- Facilitating transactions between land owners and developers
- Opportunity recognition
- Land infrastructure and planning
- Highest and best use economic analyses
- Feasibility studies
- Conveyance planning
- Deal structuring
- Price estimates from remediation to development
- Project visualization
- Environmental Studies<sup>12</sup>

The settlement also requires that \$52M be placed into a trust fund to pay for the demolition, remediation, and administrative costs associated with the El Paso smelter site and a smelter site in Amarillo, TX.<sup>13</sup>

By using advanced technology in order to preserve certain materials that are currently found on site, the Asarco property is expected to be remediated up to commercial/industrial standards.<sup>14</sup> Community Scholars has identified the ways in which the trust will distribute the funding within the remediation process in the following table.

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<sup>6</sup> (U.S. Environmental Protection Agency 2010)

<sup>7</sup> (U.S. Environmental Protection Agency 2010)

<sup>8</sup> (Borunda, Hands-on Design Sessions for Asarco Today 2010)

<sup>9</sup> (Texas Commission on Environmental Quality 2010)

<sup>10</sup> (Project Navigator, Ltd. 2010)

<sup>11</sup> (U.S. Environmental Protection Agency 2009)

<sup>12</sup> (Project Navigator, Ltd. 2010)

<sup>13</sup> (U.S. Environmental Protection Agency 2010)

<sup>14</sup> (Puga, Project Manager 2010)

**Table 1: Trust Funding for Remediation**

Components of Remediation	Costs
Demolition of Construction	\$8.9M
Groundwater Construction	\$7.1M
Long Term Operation of Groundwater System	\$14.8M
Asphalt Paving	\$9.8M
Fencing	\$68,600
Unit Cell 4	\$5.8M
Long-Term Monitoring	\$3.3M
Other Identified Costs	\$2.2M
Total	\$52M

Source: Texas Commission of Environmental Quality

The subtotal for waste management before other identified costs are factored in is about \$50M. Approximately \$25M, about half the total fund, will be allocated towards treatment and monitoring of the groundwater. Remains from the funds will be used for the construction of the fourth disposal cell. The cell will be use to contain the property's contaminated slag. About one sixth of the trust's fund will be used for the actual demolition of the current property. According to Puga, a "rainy day" fund will be created from the sale of site assets.<sup>15</sup>

The process that will be carried out for the cleanup of the Asarco site has been divided into five phases. The procedures that will be carried out are as follows:

- Phase 0: Site Transition and Team Building
- Phase 1: Site Demolition
- Phase 2: Surface Soils and Surface Water
- Phase 3: Ground Water
- Phase 4: Site Deposition

The cleanup of the Asarco site is currently in Phase 0. Phase 1 is expected to be pursued in the beginning of the 4<sup>th</sup> quarter 2010.<sup>16</sup> The entire remediation process is expected to be completed by 2015.<sup>17</sup>

On May 20<sup>th</sup>, Puga hired the Environmental Resources Management (ERM) as a demolition consultant. Known as a major consulting firm, ERM has advised on many successful demolition projects across the country and will be in charge of demolition plans for the El Paso Asarco site.<sup>18</sup> According to Puga, the best way to start the demolition process is to approach small buildings first and then continue with the remaining constructions including the smokestacks. The demolition of the smokestacks will be made into a public event, inviting the community to witness this event. One building that has been determined to be preserved is The

<sup>15</sup> (Puga, Project Manager 2010)

<sup>16</sup> (Puga, Project Manager 2010)

<sup>17</sup> (Project Navigator, Ltd 2010)

<sup>18</sup> (Project Navigator, Ltd 2010)

Power House. It will most likely be restored into a museum to house the remnants of Asarco's past.<sup>19</sup>

To assist with the redevelopment of the Asarco site, Roberto Puga selected Malcolm Pirnie, an Environmental Engineering Consulting Firm. Executing many remediation jobs in Texas, Malcolm Pirnie is responsible in overseeing the cleanup of the Asarco site.<sup>20</sup> The plan will extract water from wells from the site's groundwater in order to prevent contamination of the community's drinking water during the remediation process.<sup>21</sup> Roberto Puga has clarified that the groundwater remedy is expected to act as a Pump and Treat System with an estimated cost of about \$21.9M. Due to the fact that the site's groundwater is contaminated with heavy metals, the pump and treat system will be needed to stop contaminated water from entering the Rio Grande.<sup>22</sup> As for the initial plan, Malcolm Pirnie is responsible for creating an updated safety plan for the site, analyzing past data, identifying data gaps and taking part in the local charrette process. A charrette is a meeting where citizens, designers and others work together to create a shared vision for the future.<sup>23</sup>

Since the future of Asarco is of great public interest, the City of El Paso, and a team of planners at Dover, Kohl & Partners opened their doors to El Pasoans. They set up a two-week long charrette in order to give the community a voice on the redevelopment of the Asarco property. The charrettes held in El Paso not only helped gather perspective on the future redevelopment of the Asarco site, but allowed all participants to be a mutual contributors on the plan. The City of El Paso and Dover, Kohl & Partners were in charge of taking the community's input and using it to create a redevelopment plan for the Asarco property. These two entities have worked closely with Roberto Puga throughout this process.<sup>24</sup>

### **Asarco Property**

The total amount that is owned by the Environmental Trust consists of more than 400 acres. The site is divided into two sections of land by Interstate 10. One parcel of land is the former smelter site, while the other is the mountainous terrain across Interstate 10. However, not all of this land is usable. There are geographical barriers such as arroyos, railroads and highly elevated land that could hinder certain types of construction for redevelopment plans. The Asarco site is located a few miles from the University of Texas at El Paso (UTEP) and is just feet away from the international border with Mexico.<sup>25</sup> Community Scholars has chosen to exclusively work and focus our ultimate recommendation on the approximate 120 acre piece of land that is currently home of the former smelter. When taking into consideration the challenges of this piece of land, the question as to what should be done with the 828 foot smoke stack comes in to play.

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<sup>19</sup> (Puga, Project Manager 2010)

<sup>20</sup> (Project Navigator, Ltd 2010)

<sup>21</sup> (Shapleigh, Shapleigh Calls for Reassessing Asarco El Paso Settlement 2009)

<sup>22</sup> (Puga, Project Manager 2010)

<sup>23</sup> (Project Navigator, Ltd 2010)

<sup>24</sup> (McLaughlin 2010)

<sup>25</sup> (Puga 2010)

The 828 foot smokestack was built in El Paso in 1966 and cost approximately \$1.5M to construct.<sup>26</sup> In order to determine the how much it would cost to build the 828 foot smokestack today, Community Scholars adjusted for inflation and estimated that it would cost approximately \$10M.<sup>27</sup> There has been much debate as to what should be done with the Asarco smokestacks. There are a total of three smokestacks on the former smelter site. Tens of millions of dollars will be necessary just to stabilize the 828 foot stack if it is decided to be preserved. Along with this amount, millions more will be needed to maintain the smokestack's structure and appearance.<sup>28</sup> In a poll conducted by the El Paso Times and Reuel Group, out of 2,134 voters who live in the city, about 58 percent said that they would like to see the smoke stack preserved, almost 29 percent believe it should be demolished and about 13 percent did not know what to do or had no opinion.<sup>29</sup> Recently, it has been determined that the 828 foot smokestack and the two other smokestacks found on the property are almost certainly going to be demolished. Approximately \$750,000 has been set aside for the demolition of the stacks.<sup>30</sup>

Other characteristics of the property include the containment cells. Currently, the property has three cells which contain contaminants. The three cells together take about 15 acres, using approximately 10 percent of the available land. The rest of the 120 acres is available for redevelopment. A fourth cell is to be created on the site but is not specified where exactly it is going to be located. According to Puga, it would be ideal if the cell was established where the actual slag resides in order to make the job easier and more affordable by preventing the transportation of slag within the site which would inflate prices. Regardless of the location of the fourth containment cell, it has been established that these cells cannot be penetrated. The creation of parking lots, green space and roads would be some of the only developments that can be constructed on these cells.<sup>31</sup>

Along with property constraints, geographic barriers and the question of preserving the smoke stack, certain redevelopment restrictions have been put forth due to the site's contaminated past. Although the site will be cleaned up to industrial/commercial standards, there are still a few safety measures that have been enacted in order to avoid any possible hazards. The following are examples of possible redevelopment options for the Asarco site:

- Commercial
- Office Use
- Industrial/Manufacturing

These projects meet the standard restrictions in order to insure public safety. Redevelopment projects that are not allowed are schools, daycare facilities, residential use and hospitals.<sup>32</sup>

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<sup>26</sup> (Long 2009)

<sup>27</sup> (U.S. Department of Labor Bureau of Labor Statistics 2010)

<sup>28</sup> (Acosta 2010)

<sup>29</sup> (Burge 2010)

<sup>30</sup> (Negron 2010)

<sup>31</sup> (Puga, Project Manager 2010)

<sup>32</sup> (Puga 2010)

### **Transportation Challenges to the Site**

A dynamic economy needs a selection of transportation options to move goods and people in a quick and efficient manner.<sup>33</sup> The capability to answer to transportation needs and increase connectivity increases economic opportunities within a community.<sup>34</sup> Currently, there is one entrance from Paisano Drive that leads to the Asarco site. In an interview with Texas State Representative Joseph Pickett (D-El Paso), he stated that if a full-size redevelopment project was created on the Asarco site, the need for more roads to accommodate the traffic would most likely be needed. Adding to that, Representative Pickett, who also chairs the House Transportation Committee, also strongly believes that there is no necessity of toll roads to pay for the addition of infrastructure pertaining to the Asarco site.<sup>35</sup> To the contrary, Raymond L. Telles the Executive Director of the Camino Real Mobility Authority (CRRMA) believes that the goal of adding toll roads is that the toll revenue would pay for the actual road development without adding a burden to the community. Instead, only the users would shoulder the additional expense. He added that these types of roads could potentially decrease congestion by taking drivers willing to pay tolls off of the non-tolled roadways. One option that may help traffic around this area includes the development of the southern relief route, which could be developed through or around the Asarco site.<sup>36</sup> However, with or without a toll, both representatives seem to agree that new roads would be needed to support a potential full-size, high density development on the Asarco site.

### **Sports Stadium/Arena**

In national studies, it has been reported that sport facilities may have both positive and negative impacts on the communities in which the facility resides in.<sup>37</sup> Revitalized brownfield sites with past contamination are usually good places to build a ballpark due to its building structure. The structure typically protects its fans by acting as a barrier from contamination at ground level.<sup>38</sup> Sport facilities can also be used for multiple events such as concerts and conventions to keep the stadium in use throughout the year.<sup>39</sup> In the following sections Community Scholars will discuss economic impacts, multiple uses and costs of a commercial recreational area.

### **Harbor Yard Ballpark in Bridgeport, Connecticut**

The City of Bridgeport suffered a severe economic decline due to the contamination and abandonment of industrial sites throughout the city. Being located on Bridgeport's main gateway, the Jenkins Valve Site was visible to visitors entering the town. The Zurich Re Corporation invested \$10M and the city designated a \$7M bond to redevelop the abandoned property and turned the brownfield site into a baseball stadium. This site is now home to the Bridgeport Bluefish, a minor league baseball team.<sup>40</sup> The cost to develop the new stadium was

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<sup>33</sup> (Oregon.gov No Date)

<sup>34</sup> (Rodriguez 1998)

<sup>35</sup> (Pickett 2010)

<sup>36</sup> (Telles 2010)

<sup>37</sup> (Zimbalist and Noll 1997)

<sup>38</sup> (Moore 2008)

<sup>39</sup> (Major League Baseball 2010)

<sup>40</sup> (U.S. Environmental Protection Agency 2004)

approximately \$19M. It has a seating capacity of 5,500, including the 200 person standing room section of the stadium. Harbor Yard also hosts concerts, college basketball games and is home to hockey's Bridgeport Sound Tigers during the winter.<sup>41</sup>

### **Multiple Uses of a Ballpark Stadium**

Fenway Park in Boston, Massachusetts is a stadium that is multifunctional. It was used in January 2010 to host College Hockey's Beanpot. A slab of ice was placed from first base all the way to third base.<sup>42</sup> Another use of a ballpark may serve as a venue for various concerts. The old Yankee Stadium has hosted many major concerts including Pink Floyd, Billy Joel and many hip hop artists. The new Yankee Stadium in New York will continue this trend by hosting its first concert in the new stadium on September 13, 2010.<sup>43</sup>

### **Economic Impacts of a Ballpark**

Commercial recreational areas do not necessarily add to the regional economy, but may spur redevelopment if they are located strategically. An arena can spur redevelopment in an area where there is existing building stock for new businesses to renovate and re-use where other facilities are already located such as dining, clubs, shopping, convention and hotel services, a daytime employment population, multiple modes of transportation access, and potential for increased residential use.<sup>44</sup> Taking this into consideration, there have been numerous studies that show little to no economic benefits of sports facility subsidization. The substitution effect argues that as sports stadium related activities increase, other spending typically declines.<sup>45</sup> A new sports facility typically has a very small effect on the overall economic activity and employment to a local community.<sup>46</sup> Furthermore, if there is a desire to have an arena that can act as a catalyst for change, a site adjoining downtown is likely to be a more productive location.<sup>47</sup> The Mayor of El Paso, John Cook, also agrees that any arena development should be targeted for the downtown area.<sup>48</sup>

However, a sports stadium has the potential to attract fans from other cities which potentially brings in "new money." This increase in tourism and residents may also potentially help metropolitan areas. If the sport played is popular among the citizens within a community and highly supported, it often encourages sense of pride and civic duty in the local community.<sup>49</sup> Direct revenues from sports teams usually do not go back to the city, but are normally used to pay the salaries of players, coaches and trainers.<sup>50</sup> A new ballpark in Washington, D.C. has the potential to provide over 1,000 new jobs and millions of dollars in additional income. Mayor Williams, the mayor in D.C., introduced stadium financing legislation to the city. He stated that a

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<sup>41</sup> (Pastore No Date)

<sup>42</sup> (Fox News 2010)

<sup>43</sup> (Reitz 2010)

<sup>44</sup> (Starkie 2010)

<sup>45</sup> (Robertson No Date)

<sup>46</sup> (Zimbalist and Noll 1997)

<sup>47</sup> (Starkie 2010)

<sup>48</sup> (J. Cook 2010)

<sup>49</sup> (Robertson No Date)

<sup>50</sup> (Robertson No Date)

sports facility may improve economic development and job opportunities within a community.<sup>51</sup> Stadium proponents usually argue that a considerable amount of new jobs could be generated for the community with the construction of new stadiums.<sup>52</sup> However, of the approximate 1,000 new jobs, only about 300 to 380 jobs will go to the city's local residents.<sup>53</sup> Jobs that are generated by sports complexes include concession stand workers, souvenir vendors, security personnel, hotel employees and restaurant employees.<sup>54</sup> The revenues generated by these departments usually do not benefit the taxpayer, but typically benefit the team's franchise instead.<sup>55</sup>

### **Cost to Build Ballparks**

From 1991 to 2003, American cities have spent approximately \$2B to build 14 new sports stadiums, each averaging about \$241M in construction costs. Each stadium has an average capacity of about 46,000 seats, costing developers approximately \$5,300 per seat. Cities on average had to pay two-thirds of the total construction which is equivalent to about \$3,500 per seat.<sup>56</sup> Indirect benefits such as increased tourism and the attraction of businesses and residents to the community are what taxpayers typically have to rely on as a form of monetary income produced by a stadium.<sup>57</sup>

## **Casinos**

Casinos have the potential to generate substantial revenue for the cities they are built in. However, they create social costs that can negatively affect a community.<sup>58</sup> Community Scholars has chosen to do a case study of casinos and the effects they have on the quality of life and the economy of their local communities.

### **Gambling in Texas, El Paso**

According to the Texas State Law under PEN 47.01, it is illegal to have a casino constructed within the state. According to this law, gambling is defined as "agreeing to win or lose something of value by chance." Therefore establishing a gambling place, better known as a casino, is currently not allowed.<sup>59</sup>

In 2002, Speaking Rock Casino, owned by the Tigua Indians, was shut down by former State Attorney General John Cornyn (R-Texas). The Tiguas have tried to regain their state casino licenses back, but have had no luck. If reopened, Speaking Rock Casino has the potential to annually bring in about \$60M to the tribe. However, citizens against gambling insist that casinos

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<sup>51</sup> (Lazere 2003)

<sup>52</sup> (Baade 1987)

<sup>53</sup> (Lazere 2003)

<sup>54</sup> (Baade 1987)

<sup>55</sup> (Moore 2008)

<sup>56</sup> (Depken 2006)

<sup>57</sup> (Moore 2008)

<sup>58</sup> (Rose 1998)

<sup>59</sup> (Thomson Reuters 2009)

could potentially increase violent crimes, raise bankruptcies and create gambling addictions amongst citizens in their communities.<sup>60</sup>

### **Brownfield Casino**

Central City, Colorado was historically known as a mining town in which deposits of gold and silver were found. Once World War II began, the government prohibited commercial gold mining and shut down the mine.<sup>61</sup> In 1983, Central City's mining site was transferred into the hands of the EPA and the clean up process immediately began. The site had several slag waste piles that contained metals such as copper, lead, arsenic and cadmium. The groundwater around the area was also contaminated.<sup>62</sup> After the site was revitalized, the city struggled to determine how to attract tourists to the area. Central City concluded that a casino would bring in the desired economical revenue. However, there were laws against gambling in that area. On November 6, 1990, voters in Colorado approved the legalization of limited gambling in historic mining towns including Central City.<sup>63</sup>

### **Effects of Casinos**

Should a casino be developed on a brownfield, such as in Central City, the money collected from this type of business can be used to fund necessities in communities such as roads, fire protection and police departments. Along with bringing monetary income into the community, casinos produce employment in the area. Most of the jobs are low skilled and low paying services, but the tips that can be received by employees can potentially balance into a higher pay. Another benefit from these jobs is that some casinos offer their employees health coverage.<sup>64</sup>

Along with the beneficial factors of casinos, there are multiple negative factors. If the infrastructure doesn't support the large amount of visitors that are attracted to the site, casinos can cause a drain on public services such as sewers and roads, causing traffic congestion within the city.<sup>65</sup> There has also been a link between casinos and crime. After introducing a casino, arrests, automobile accidents, drug use and medical assistance (due to violence) within the community tend to increase.<sup>66</sup> Casinos might make profit, but their social costs can also take a toll on the city's income. Crimes related to a casino end up costing the city money to invest in increased law enforcement, transferring the focus from other needs within the city.<sup>67</sup> Also, for every \$46 that is benefited from a casino, the city spends approximately \$289 in special costs due to compulsive gambling.<sup>68</sup>

Pathological gambling, or compulsive gambling, defined as a disorder in which a person is unable to resist the urge to gamble, is another impact seen within casino operations. Often

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<sup>60</sup> (Ruckman 2009)

<sup>61</sup> (Gilpin Historical Society 2010)

<sup>62</sup> (Colorado Department of Public Health and Environment 2004)

<sup>63</sup> (Gilpin Historical Society 2010)

<sup>64</sup> (Rose 1998)

<sup>65</sup> (Rose 1998)

<sup>66</sup> (People Against a Casino Town No Date)

<sup>67</sup> (Rose 1998)

<sup>68</sup> (Reutter 2004)

difficult to stop without professional help, this disorder acts like drug and alcohol addictions. Pathological gambling is linked to alcohol and drug abuse, anxiety, depression, financial or social problems, heart attacks and suicide attempts. Relationships and jobs tend to be lost and crimes are often committed over finances that are used for gambling purposes.<sup>69</sup> About one-third of inmates who were convicted in the Las Vegas and Des Moines, Iowa prisons (two cities with popular casinos) were found to have gambling disorders. Thirteen percent of the convicts that were found to be pathological gamblers were also committed for assault. Along with crimes related to monetary interests, gamblers in prison were likely to have taken part in the drug business as well.<sup>70</sup> Compulsive gambling cost the nation's economy about \$54B annually, approximately half the amount the United States spends on drug abuse (\$110M).<sup>71</sup>

### **Mixed Commercial Use Development**

Through our research, Community Scholars has found that it is very common for communities to develop commercial areas on former brownfield sites. Different types of buildings that range from restaurants to office buildings have been included in commercial redevelopment plans.<sup>72</sup> For the purposes of this report, Community Scholars has chosen to use examples of comparable sites based upon their size and location in order to act as a model for the potential economic and quality of life effects that a commercial redevelopment plan can have on the Asarco site.

#### **Impacts of Commercial Use**

Other large sites have been successfully transformed into commercial districts such as Victory Park. Victory Park in Dallas, Texas, is an approximate 70 acre multi-use development. This site was once home to a city dump, an electric plant and a meat packing plant.<sup>73</sup> This commercial area took approximately \$12M to be revitalized and is predicted to generate \$1B in income per year. With the help of the EPA, the City of Dallas redeveloped the property into a multi-use development.<sup>74</sup> Developing a commercial property similar to that of Victory Park at the Asarco site puts El Paso in the position to reap the economic benefits of monetary income, jobs and tourism.

#### **Fair Park**

The large size of the Asarco property can cause any redevelopment option to have an influx in construction and maintenance costs. A good model of another large multi-use development is Fair Park located in Dallas, Texas. Fair Park in Dallas is known nationwide for the annual statewide fair that it hosts. It is a tourist destination in the Dallas Ft. Worth area and brings in over seven million people per year. It is about 277 acres and includes museums, green space, restaurants, and other entertainment facilities. Fair Park has a budget of about \$4.5M per

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<sup>69</sup> (Vorvick 2010)

<sup>70</sup> (U.S. Department of Justice 2004)

<sup>71</sup> (Reutter 2004)

<sup>72</sup> (Nationwide Realty Investors 2010)

<sup>73</sup> (American Airlines Center 2010)

<sup>74</sup> (Da Vinci Graphics 2009)

year.<sup>75</sup> Along with these amenities, Fair Park also includes the Cotton Bowl, the ninth largest football stadium in the United States. This stadium seats approximately 92,100 people.<sup>76</sup> If El Paso follows this example for redevelopment, it can bring just as much income into the city and therefore acting as an economic stimulus.

### **Fundidora Park**

Monterrey, México was once home to the Fundidora de Fierro y Acero de Monterrey. This industrial company produced iron and steel. After operating for over 80 years, the industrial company was closed in 1986. The site is located approximately 124 miles from the international border and sits on about 281 acres of land. Although it had a past tainted by contamination, the City of Monterrey was able to properly revitalize the land and redevelop the area into Fundidora Park, attracting tourists and bringing in revenue for the City of Monterrey.<sup>77</sup>

Visitors have access to a wide variety of activities. This area includes about 128 acres of green space that encourages many Monterrey residents to engage in walking or jogging activities. There are also other attractions, such as an amusement park, arena, hotels and museums that visitors can enjoy.<sup>78</sup> Cintermex, the convention center located inside of Fundidora Park, seats about 2,200 people and is used for conventions, graduations and meetings.<sup>79</sup> Along with the convention center, there is also an entertainment auditorium and an arena that has an approximate capacity of 17,000 people. In 2002, approximately 4.5M people visited this site. The park continues to act as a main attraction in the Monterrey area. Five entrances to the site were created to help Fundidora Park function more efficiently. Of the five entrances, four are accessed by motor vehicles while the fifth is restricted to pedestrians only. Due to its industrial past, Fundidora Park has incorporated its old buildings and machinery into the park. Most of the historical buildings that were built between 1903 and 1920 were made out of red brick and steel and have been preserved. Machinery is on display in the museums that are dedicated to the history of the old manufacturing company.<sup>80</sup>

### **Omaha, Nebraska**

In 1899, Asarco opened another property in Omaha, Nebraska that was home to a smelter site as well. After almost 100 years of service, the company was shut down due to contamination.<sup>81</sup> The EPA found approximately 400 tons of toxic air emissions, close to 42 tons of pollution to water and about 17 tons of pollution to the land.<sup>82</sup> Plans for clean up and redevelopment in the area began shortly after the smelter terminated its operations.<sup>83</sup> The land was capped off and the materials were moved off-site to be recycled or ultimately disposed of.<sup>84</sup>

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<sup>75</sup> (Dallas City Hall 2003)

<sup>76</sup> (Friends of Fair Park 2010)

<sup>77</sup> (Lopez 2009)

<sup>78</sup> (Lopez 2009)

<sup>79</sup> (Cintermex 2005)

<sup>80</sup> (Lopez 2009)

<sup>81</sup> (Shapleigh, Asarco in El Paso 2008)

<sup>82</sup> (U.S. Environmental Protection Agency 2010)

<sup>83</sup> (Shapleigh, Asarco in El Paso 2008)

<sup>84</sup> (Huscher 2002)

The city was able to come to a final compromise after much debate regarding plans for redevelopment. The National Park Headquarters and the Gallup Organization, a research oriented news corporation, relocated their main offices and educational campuses to this site. There is also a pedestrian bridge that crosses the Missouri River. In order to promote healthy living within the community, developers created many walking and biking trails for residents. Restaurants and commercial areas are found in abundance at this site.<sup>85</sup> A popular convention center known as the Qwest brings in tourists and performing artists year round. The Qwest alone is responsible for bringing in approximately \$3.5M annually.<sup>86</sup> Within these mixed commercial developments, smart growth can be incorporated into these projects. In the following section, Community Scholars has looked at the effects of smart growth on redevelopment.

### **Smart Growth**

Communities nationwide are focusing their concern on urban sprawl. Urban sprawl is the development in which land, transportation, social and economic developments are used in a complex pattern.<sup>87</sup> A concept, known as smart growth, has been created in which new developments are built vertically, instead of horizontally.<sup>88</sup> The City of El Paso is currently trying to encourage smart growth development with its adoption of smart code initiatives.

#### **Smart Codes**

Smart codes are development standards that can be used in smart growth. They encourage the planning of the site to include some amenities such as mixed-use development and the preservation open space. Smart codes help develop cities in ways that encourage people to walk or bike and create more human interaction. These ideas have provided evidence that has suggested the improvement of health and quality of life of the local community.<sup>89</sup> Although smart code is not mandatory in the City of El Paso, it is an ideal way to develop an area.<sup>90</sup>

#### **Benefits of Smart Growth**

Smart growth brings multiple types of buildings in walking distance from each other. Commercial uses and parks are typically very close to each other in smart growth communities, and therefore, cars are not relied on as much to transport people from one place to another and money spent on transportation is saved. This kind of development puts “real money” back in community members pockets because instead of spending their income on gasoline and automobile repairs, the money can be used on other necessities.<sup>91</sup> In Sacramento, it is projected residents will have saved about \$380M in fuel costs due to smart growth implementation. In California, studies have found that in smart growth areas, the carbon dioxide emissions have been reduced which ultimately improves the local air quality.<sup>92</sup>

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<sup>85</sup> (Huscher 2002)

<sup>86</sup> (Herink 2010)

<sup>87</sup> (Frumkin 2002)

<sup>88</sup> (Robinson 2005)

<sup>89</sup> (Carney 2006)

<sup>90</sup> (McElroy, Deputy Director Planning and Development Department 2010)

<sup>91</sup> (McElroy, Deputy Director Planning and Development Department 2010)

<sup>92</sup> (Benfield 2009)

## Other Brownfield Sites with Smart Growth Ideology

Smart growth is considered to be the most efficient way to develop an area. It is a principle that has been practiced before and proven successful. As the City of El Paso continues to mature, it would be beneficial if it grew vertically rather than only horizontally. As stated before, it is common to use smart growth principles to redevelop brownfield sites.<sup>93</sup>

Hercules Dynamite Factory In 1970, the Hercules Dynamite Factory was closed due to contamination caused by black powder, nitroglycerine and other hazardous materials. Shortly after, the city put an oil refinery in its place. This refinery brought in substantial tax revenue for the city. However in 1992, this factory was also closed and a few years later a revitalization plan was created for the site. Dover, Kohl & Partners was hired to assist in the development of the area. Part of the approximate 400 acre piece of property was planned to be transformed into the city's "town center." The site, located close to Interstate 80, had a 10 day charrette process in which public opinion was sought.<sup>94</sup> After much consideration from the city, the Hercules Dynamite Factory was transformed into a mixed use residential district with commercial and service sites. Dover, Kohl & Partners also included a street network within the area to reduce added traffic and improve connectivity.<sup>95</sup>

Glenwood Park Glenwood Park is a smart growth community built in Atlanta, Georgia. The area, which is approximately 28 acres, was considered to be a brownfield before redevelopment. It was once home to a concrete recycling facility. This site is comparable to Asarco due to its location next to an interstate highway and its mile radius from two different rail stops. Along with shorter streets to promote walk ability, a rapid transit from Glenwood Park to downtown was created to promote eco-friendly transport. Mixed use development is used all around the area with the combination of homes and commercial spaces. The community has won multiple awards for its successful remediation and environmental awareness.<sup>96</sup>

## Green Space

A green space is defined as an area of land within an urban area that has not been built upon and contains grass, trees, plants and a natural environment.<sup>97</sup> Some examples of green spaces are parks, golf courses and nature trails. Due to the different amenities that need to be considered, it is difficult to estimate the cost of such a space. However, there is potential for benefits if continual support and reinvestment is made.<sup>98</sup> In the following sections, Community Scholars will discuss economic impacts, multiple uses and costs of a green space area.

### Benefits from Green Space

Whether it is a park or a nature refuge next to a river, green space can help a community in multiple ways by improving health, the environment and the overall quality of life. A green

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<sup>93</sup> (McElroy, Deputy Director Planning and Development Department 2010)

<sup>94</sup> (Shigley 2001)

<sup>95</sup> (Dover, Kohl & Partners 2010)

<sup>96</sup> (Terrain.org 2005)

<sup>97</sup> (ScienceDictionary.com 2010)

<sup>98</sup> (McKnight 2010)

space can encourage residents to exercise and provide a place for recreational activities.<sup>99</sup> Considering El Paso was ranked as the nation's seventh most obese city in 2009, using the Asarco site to create a green space has the potential to improve the community's health.<sup>100</sup> Environmental benefits for the community from a green space can include supporting a diverse array of wildlife and improving air and water quality.<sup>101</sup> Considering Asarco is a polluted site, after its clean up, using its land for a green space can illustrate the city's campaign to be more environmentally conscious.

A green space in the Asarco area can also benefit the area socially. Open space allows the community to come together to socialize.<sup>102</sup> Developing a green space in this area can bring people from across the community to one place and create unity. For example, these new sites can be parks and open spaces by day and transform into a place to hold concerts and festivities by night. An example of a city that has put their outdoor space to use is New York City. Central Park is a popular site for tourists and residents in which many activities are scheduled.<sup>103</sup>

### **Former Brownfield Sites Revitalized Into Green Space**

Brownfield sites have been transformed into environmental-friendly areas around the nation. Due to this common trend of redevelopment, incorporating a green space into the development plans for the Asarco site could prove to be beneficial to the City of El Paso. The Button Hole was previously a gravel pit that was thought to be contaminated due to its proximity to a metals recycling plant. It is located in Providence, Rhode Island and was taken under the EPA. Small levels of lead and arsenic were found on the site, but after remediation, the 25 acre area was turned into a golf course for local youth and residents to use. It involves a training center and an adjacent bike trail that leads to Downtown Providence. The total redevelopment project, including additional projects aside from the green space, totaled about \$13M.<sup>104</sup> It can be common to incorporate an amphitheater within a green space. For this reason, Community Scholars has looked at the effects of amphitheaters on different communities.

### **Amphitheaters**

During the charrette process, the citizens of El Paso suggested an amphitheater as part of the redevelopment of the Asarco site. Amphitheaters are outdoor venues used for concerts, theatrical performances and much more. They often include standing curved shaped structures called band shells behind the stage and audience in order to create a well echoed and amplified area.<sup>105</sup> Amphitheaters create a sense of belonging for residents as well as attract tourists.<sup>106</sup>

### **Amphitheaters on Brownfields**

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<sup>99</sup> (West Virginia Brownfields Assistance Center 2010)  
<sup>100</sup> (American Media, Inc. Fitness & Health Network 2009)  
<sup>101</sup> (West Virginia Brownfields Assistance Center 2010)  
<sup>102</sup> (West Virginia Brownfields Assistance Center 2010)  
<sup>103</sup> (Central Park Conservancy 2010)  
<sup>104</sup> (U.S. Environmental Protection Agency 2001)  
<sup>105</sup> (AbsoluteAstronomy.com 2010)  
<sup>106</sup> (The Entertainment Pavilions, Inc. 2005)

For the purpose of this report Community Scholars has chosen to compare other amphitheaters from other parts of the country to act as a model for the potential impact that a similar attraction could have on the City of El Paso.

Leach Amphitheater is located at Riverside Park in Oshkosh, Wisconsin. The eight acre site was formerly used as a gas plant that used primary energy sources to light and heat area homes. The property consisted of several buildings and structures along with a furniture factory, a railroad and lumber storage. In 2002, the remediation process included the demolition of buildings, disposal of approximately 4000 tons of debris along with contaminated soils and treated about 23,500 tons of materials to redistribute on site. A groundwater trench recovery system was also constructed in order to treat contaminated water and control the flow of groundwater. On December 2003, the City of Oshkosh purchased the site for redevelopment.<sup>107</sup>

Along with private funding used for the redevelopment, the city collected several federal grants. The city received approximately \$200,000 from the Green Space and Public Facilities Grant and about \$25,000 from the Community Development Block Grant. Considering that the site was categorized as a brownfield, the city also qualified for approximately \$60,000 from a Brownfield Site Assessment Grant. In 2005, the city completed the development of a recreational green space that included an amphitheater.<sup>108</sup> Leach Amphitheater is now home to live music, special events and festivals. The venue accommodates over 7,000 visitors and includes concession buildings, landscaping and parking.<sup>109</sup> Attracting many residents and visitors, the entire project is considered to be one of the most creative brownfields success stories celebrated by the City of Oshkosh.<sup>110</sup>

Mitchell Park Pavilion is an amenity within Mitchell Park in Greenport, New York. Before redevelopment, this approximate three acre parcel of land used to be contaminated by a shipyard. In 1996 the former property owners filed for bankruptcy which ultimately caused the Village of Greenport to assume ownership. The remediation process for the site included the removal of underground petroleum tanks and hundreds of yards of contaminated soil that contained petroleum and arsenic residues. The groundwater was monitored and the land was revitalized and covered with clean soil. For the redevelopment of the site, the Village of Greenport held a design competition that attracted over 500 submissions from about 26 countries. The process led to the construction of a public park that includes many attractions one being an amphitheater.<sup>111</sup> The Mitchell Park Pavilion hosts many concerts, dances, theater productions and more.<sup>112</sup>

### **Other Amphitheaters**

Cynthia Woods Mitchell Pavilion is an outdoor amphitheater located in Woodlands, Texas. Within the Greater Houston region, this venue seats about 6,500 guests and includes an open space lawn that has a capacity of approximately 10,000 people. The Pavilion is owned and

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<sup>107</sup> (Wisconsin Department of Natural Resources 2007)

<sup>108</sup> (Wisconsin Department of Natural Resources 2007)

<sup>109</sup> (Leach Amphitheater 2009)

<sup>110</sup> (Wisconsin Department of Natural Resources 2007)

<sup>111</sup> (Ennist 2006)

<sup>112</sup> (Rallis 2007)

operated by a non-profit called the Center for the Performing Arts at The Woodlands and is governed by a volunteer board of directors. Together they present about 75 events from March through November. They also offer educational outreach programs that enrich many with performing arts. In 1992, the Cynthia Woods Mitchell Pavilion became the official summer home of the Houston Symphony and hosts many of their performances every season.<sup>113</sup> In the following section, Community Scholars has looked at the possible effects of theme parks on communities.

### **Amusement Parks**

The City of El Paso is exploring all possible options for the redevelopment for the Asarco site. One possibility is the development of an amusement park. This could act as an economic driver and improve the overall quality of life in El Paso. It is important to account for the requirements needed to obtain an amusement park, how to attract owners of amusement parks and if an amusement park is the best choice for the Asarco property.

#### **Impacts of Amusement Parks**

Amusement parks can be assets to a region's monetary income. They result in the creation of jobs and can lead to the stimulation of the local and national economy.<sup>114</sup> Tens of thousands of seasonal employees are hired in the amusement industry every year. Amusement and theme parks have the potential to create positions such as tour guides, trainers, food service workers and photographers. The varieties of employment not only benefit local residents, but people from other areas as well. It also has the potential to help local students find seasonal jobs.<sup>115</sup>

Along with creating pride within the local community, amusement parks can also attract tourists from all over the nation. Tourism stimulates a local economy by bringing people to a site, increasing the number of direct and indirect jobs, attracting businesses and acting as a source of tax revenue.<sup>116</sup> Economic activities associated with tourists attracted to amusement parks typically benefit the region's quality of life. The economic impact of tourism varies depending on the region. In well developed areas, tourism has resulted in additional shops, theaters and restaurants, offering residents more options that were previously unavailable. There is evidence in which amusement parks have lead to an increase in the number of jobs, income, tax revenue, local economic growth and development.<sup>117</sup>

The multiplier effect is proof that money spent by tourists has an effect on the economy. Part of every dollar spent by a tourist will be considered as a "leak," where the money leaves the economy and is registered as a profit for the private business. The remainder of the money that remains within the local economy may be saved or loaned to another spender, invested or used for other purchases. Known as "first round spending," this process generates additional income for manufacturers and producers. As the money cycle continues, dollars create more leaks while

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<sup>113</sup> (Center of the Performing Arts at the Woodlands 2002)

<sup>114</sup> (Braun 2000)

<sup>115</sup> (Job Monkey Incorporate 2010)

<sup>116</sup> (Goldman, Nakazawa and Taylor 1994)

<sup>117</sup> (Braun 2000)

the remaining of the dollar amounts represents a “second round spending.” The cycle continues as money is spent, causing the multiplier effect and in return acting as a stimulation to the economy. The more money spent by tourists at amusement parks, the more money the local economy maintains leading to positive effects due to the multiplier effect.<sup>118</sup>

While tourism can lead to economic growth, there are certain requirements that outline an area that would typically support an amusement park. The most common requirements are as follows:

- Adequate market with sufficient disposable income
- Large site
- Excellent access to site
- Appropriate zoning
- Available supply of part time workers
- Acceptable weather

The key to a successful amusement park is having an adequate market within 100 to 200 miles, allowing adequate disposable income to afford retired expenditures. The minimum size of a park is expected to be about 100 acres, and is motivated to contain a maximum of more than 400 acres. It is very important that an amusement park has the proper infrastructure in order to support traffic and accommodate transportation to and off the site. The site also needs the appropriate zoning due to the fact that theme park developers usually have no interest in becoming involved in a battle for zoning change. Students and spouses looking for part-time employment are key sources. Therefore locating an amusement park near a college or a military base is a huge asset. Another important requirement for an amusement park is that it must be able to operate at least 140 days a year.<sup>119</sup>

Community Scholars did an analysis of adequate markets within 200 miles radius from amusement parks in the state of Texas. For multiple reasons, Community Scholars chose Six Flags Fiesta Texas in San Antonio and Six Flags Over Texas in Dallas. For each city, we got the populations of each county that fell within the parks 200 miles radius. The following table shows the total population with each park’s adequate market.

**Table 2: Southwest Amusement Park Attendance in 2002**

Amusement Park	Attendance	Population (200 Mile)
Six Flags Over Texas (Arlington, TX)	2,675,000	8,451,435
Six Flags Fiesta Texas (San Antonio, TX)	1,875,000	9,665,085
Elitch Gardens (Denver, CO)	1,500,000	4,594,941
Proposed Amusement Park at Asarco	N/A	7,701,167

Source: All Business, US Census Bureau, INEGI

In the table above the populations for Six Flags Six Flags Fiesta Texas has the largest populations of about 9.7M within the counties that are in a 200 mile radius of San Antonio. Elitch Gardens in Denver has the lowest population in the surrounding areas with approximately

<sup>118</sup> (Braun 2000)

<sup>119</sup> (Braun 2000)

4.6M. The population in the counties surrounding El Paso, including counties in Mexico, is about 7.7M which is midrange in comparison to the three other cities that have Amusement Parks. Since El Paso's population is similar to that of the counties surrounding Arlington, TX, one can estimate that an amusement park similar to that of Six Flags Over Texas could potentially bring in approximately 2.7M visitors to the area.

Amusement parks are not always a benefit to its community. If the city is not prepared, it can result in overpopulation. Depending on the situation, hospitals could experience overcrowding, roads could be congested with traffic and the need for an efficient water supply could increase.<sup>120</sup> Amusement parks are usually located in the outskirts of cities due to that fact that they require a lot of surface space for parking. In regards to an amusement park in the core of El Paso, the Asarco site would probably not have the infrastructure to support such a project only because of current access issues. These could easily be overcome with appropriate roadway improvements.<sup>121</sup>

### **Impacts of other Amusement Parks Nationwide**

For the purpose of this report Community Scholars has chosen to compare amusement and theme parks from other parts of the country to act as a model for the potential impact that a similar attraction could have on the City of El Paso. The parks below were chosen based on the total acreage the park resides on and the year that the site was built.

Cedar Park City Council approved the development of a new Schlitterbahn water park to be added to the local community. The new attraction in Cedar Park, Texas, is expected to be completed by 2012. The site will be located halfway between Highway 83 and Interstate 35. The initial blueprint plans are to build an approximate \$75M, 67 acre water park that acts as a year round entertainment destination that can appeal to vacationing families and business travelers. The park will provide about 160,000 square feet of retail and restaurant space and result in the creation of more than 1,000 jobs. As part of the water park's plans, Cedar Park would spend up to \$6M in sales tax and revenue to construct infrastructure such as roads and sewer lines around the area. The city will also share sales tax, property tax and hotel occupancy tax revenue with Schlitterbahn. The entire project is expected to expand into more than 95 acres and cost over \$360M.<sup>122</sup>

The Wizarding World of Harry Potter is a new attraction in Orlando, Florida. This attraction is within Orlando's Island of Adventure theme park and is based on the bestselling book series by J.K. Rowling. With the Island of Adventure Park averaging about 12,700 guests per day, the number of visitors is expected to increase with the addition of the Wizarding World of Harry Potter. After five years and more than \$200M in the making, people will be able to explore the world of Harry Potter and experience rides along with sites that bring characters from the popular series of books to life.<sup>123</sup>

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<sup>120</sup> (Braun 2000)

<sup>121</sup> (McElroy, Deputy Director Planning and Development Department 2010)

<sup>122</sup> (Smariani 2010)

<sup>123</sup> (Garcia 2010)

## Mass Transit Station

Another popular idea among the community is to construct a mass transit station that would accommodate a trolley, a light rail or bus rapid transit (BRT). Participants at the local charrettes stated that by locating a main station within the Asarco site, it would be an opportunity for fast transportation around the city and perhaps to others nearby.<sup>124</sup> The idea the community seems to favor resembles that of Grand Central Station in New York City. In a recent survey conducted by the University of Texas at El Paso (UTEP), participants agreed that the City of El Paso needs more options for public transportation.<sup>125</sup> Dover, Kohl & Partners conducted an unscientific poll asking those at the meeting various questions regarding mass transit in the El Paso region. One question asked what would get them to use public transportation more frequently. The majority of the people answered that they would use it if it was faster and they did not have to wait for it.<sup>126</sup> Taking the poll's results into consideration, one can assume that the majority of citizens are willing to use mass transit if it reduced travel times and was a comparably better option for transportation.

Since 2008, El Paso city officials have been pushing to bring rapid transit to the city. Local leaders are trying to accomplish this goal.<sup>127</sup> According to El Paso City Council, the city is opting to go with BRT over a light rail system due to the fact that it is less expensive to build and upkeep. The cost to build the approximate 50 mile corridor for the BRT is approximately \$330M, while the cost to build one single mile of light rail has an approximate cost of \$60M.<sup>128</sup> In the 1999 Comprehensive Plan for El Paso, there was a proposal to build a light rail system between El Paso and Ciudad Juarez.<sup>129</sup> There has been no word of this since, but in 2009 the Mayor from Ciudad-Juarez proclaimed a possibility for a light rail to connect Ciudad-Juarez and the El Paso downtown area by 2013.<sup>130</sup>

A BRT system is a bus transportation system that operates similar to regular buses but has the efficiency of a rail.<sup>131</sup> Some of the benefits of BRT are improving service and rider experience, being faster and more convenient than regular buses and alleviating congestion on local highways. There are many cities across the United States implementing BRT. Among them are:

- Las Vegas (MAX)
- Los Angeles (Metro Rapid)
- Everett (SWIFT BRT)
- Las Vegas (ACE)<sup>132</sup>

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<sup>124</sup> (Dover, Kohl & Partners 2010)

<sup>125</sup> (Olemdo, et al. 2008)

<sup>126</sup> (Dover, Kohl & Partners 2010)

<sup>127</sup> (Berg 2008)

<sup>128</sup> (Acosta, City Plans Meetings on Proposed Rapid Transit 2010)

<sup>129</sup> (Department of Planning, Research & Development 1999)

<sup>130</sup> (Acosta, Juarez Mayor: Light Rail Can Exist By 2013 2009)

<sup>131</sup> (Galicia, et al. 2009)

<sup>132</sup> (City of El Paso 2010)

The Las Vegas Metropolitan Area Express (MAX) is a BRT corridor that runs over a stretch of about five miles. There are about 22 stations, each that are about one mile apart. Along this corridor are 10 intersections equipped with Traffic Signal Priority (TSP) and one queue-jumper.<sup>133</sup> A queue-jumper is a system that gives public transit a green light to skip lines created by red lights.<sup>134</sup> This technology allows the BRT to keep operating efficiently and quickly even during traffic peak hours. The MAX is able to transport up to 600 passengers per hour in each direction. The vehicle type in use with MAX has a maximum speed limit up to 45 miles per hour. Each of the vehicles had a cost of approximately \$1M. To ride a bus, one must buy their tickets from vending machines that are located on the property. To board a bus, proof of ticket is required. By implementing off-vehicle ticket vending and proof of purchase, the station dwell time, or time spent waiting at the station, is reduced. A bus will arrive, board and depart from the station approximately every 12 minutes. The total capital cost for MAX, which includes vehicles, shelters, message signs, radio communication and traffic signal priority equipment, was about \$20.3M.<sup>135</sup> A corridor ACE is expected to open by 2012. This new BRT line will stretch about 11 miles and will cost approximately \$52M. The ACE system will incorporate all technology currently used by the MAX system to provide fast and reliable service.<sup>136</sup>

### Technology Research Facilities

Technology research centers are typically created to help advance the acquisition of information through the consolidation of all resources such as discussion forums or news.<sup>137</sup> Research parks range in sizes from 2 acres to 7,000 acres. The average size of a research park is about 358 acres. These parks employ about 750 employees that have knowledge in one or more of the following fields:

- IT Industries
- Drug firms
- Pharmaceutical firms
- Scientific Service Providers
- Engineering Service Providers<sup>138</sup>

Community Scholars has researched technology facilities due to public suggestions from the local charrettes. Technology facilities might even be able to interact with UTEP. In the following section, Community Scholars will be discussing about some technology facilities.

#### Pittsburg Technology Center (PTC)

In Pittsburgh, Pennsylvania, a former iron manufacturing plant that sat on about 48 acres of land was revitalized into a technology center. This site was previously filled with contamination from tar pits, oil waste, oily water and ferrous cyanide. The redevelopment plan

<sup>133</sup> (Kim, Darido and Schneck 2005)

<sup>134</sup> (Lahon 2009)

<sup>135</sup> (Kim, Darido and Schneck 2005)

<sup>136</sup> (Witcher 2010)

<sup>137</sup> (Oracle 2009)

<sup>138</sup> (Battelle 2007)

<sup>138</sup> (Battelle 2007)

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included a riverfront property to make the site aesthetically pleasing. Funded by multiple investors, this technology center had an overall construction cost of about \$104M and had immediate success after its completion.<sup>139</sup>

The following table describes the funding that was used for the construction of the Pittsburgh Technology Center.

**Table 3: PTC Governmental Funding**

<b>Donator</b>	<b>Amount</b>
PA Department of Commerce	\$10M
PA Department of Community Affairs-Strategy 21 Plan	\$8.3M
City of Pittsburgh	\$2.3M
Urban Redevelopment Authority of Pittsburgh	\$1.5M
Pittsburgh Water and Sewer Authority	\$2.9M
Private Foundations	\$300,000

Source: Western Pennsylvania Brownfield Center

In the table one can see that most of the funding came from the state government, totaling about \$18M. The City of Pittsburgh contributed roughly \$8M. With these public projects, the community attracted \$300,000 from private foundations. Together as a whole, the government contributed about \$25M.

Due to the development of the Pittsburgh Technology Center into a technology hub, the property value of the site increased. The technology center hired approximately 1,000 employees that had knowledge in high tech equipment and research. This new technology center brings in about \$1M in taxes every year for the City of Pittsburgh.<sup>140</sup>

### **Fort Leonard Wood Technology Park**

The technology research park is located in Missouri on an active United States Military post. This park sits on approximately 60 acres of land and consists of two buildings, each having an approximate area of 18,000 square feet. By 2002, one of the two buildings completed construction. It is about 96 percent occupied by businesses and has approximately 68 employees working in the building. The second building was completed by 2005. This building is occupied by approximately 80 employees that specialize in the field of research.<sup>141</sup>

The Fort Leonard Wood Technology Park employs about 522 employees that earn an average salary of about \$90,000 per year. Technology research parks can also potentially provide other jobs that are outside of the realm of the businesses that the technology center houses. A total of about 1,170 indirect jobs were made available with the opening of the Fort Leonard Wood Technology Park. These employees with indirect jobs earn on average about \$20,000 per year.<sup>142</sup>

<sup>139</sup> (Western Pennsylvania Brownfields Center 2007)

<sup>140</sup> (Western Pennsylvania Brownfields Center 2007)

<sup>141</sup> (Hanover Research Council 2009)

<sup>142</sup> (Hanover Research Council 2009)

The Fort Leonard Technology Park is still going under construction and continuing development. The park has long term plans to house approximately 17 buildings. The cost of two more additional buildings is estimated to have a total construction cost of about \$20M. Approximately \$15M will come from private investors and the remaining \$5M will be funded by the state. The overall impact of this continuing development project on the Fort Leonard Technology Park on the local community is about \$44M.<sup>143</sup>

## Solar Power

A reoccurring idea amongst community members during the local charrettes was to use the site as a renewable energy facility. Renewable energy relies on energy sources that are naturally replaced in short periods of time.<sup>144</sup> The two that seem to be popular amongst local citizens were solar power plants and wind energy farms. The community seems to approve these ideas because they are “environmentally friendly” and “free” in a way. In the following sections, Community Scholars did an in depth study of the two types of renewable energies. One option for the site is to build a solar power plant to be a source of electricity for the city. The EPA launched a new program called RE-Powering America’s Land which support the transformation of brownfield sites into renewable energy plants also known as Brightfields.<sup>145</sup> With over 300 sunny days a year in El Paso, a solar power plant would likely be able to produce a high yield of electricity.<sup>146</sup>

### Types of Solar Plants

There are many different kinds of solar energy systems, but the most popular ones are the Solar Trough System, Solar Power Tower and Solar Dish/Engine System. Each of the solar power plants yields different percents of electricity.<sup>147</sup>

The trough systems dominate the market among commercial power plants. This system circulates synthetic oil through pipes and takes it to a heat exchanger to produce steam. A solar tower energy plant produces power on large scales. This system works by focusing a field with thousands of mirrors to a receiver located on top of a tower that takes the heat and then produces steam at the foot of the tower. With these two systems the steam moves a steam turbine. A different type of system is the solar dish which is an array of mirrors in a dish shape that concentrate the heat to a receiver. The receiver moves a kinetic Stirling engine.<sup>148</sup>

Percent Efficiency of Plants To calculate the percent efficiency of the solar plants, the theoretical output of parts to electricity must be known first. The actual known parts to electricity output number is then divided by the theoretical parts to electricity number. This number is multiplied

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<sup>143</sup> (Hanover Research Concl 2009)

<sup>144</sup> (CPAST 1998)

<sup>145</sup> (Casey 2010)

<sup>146</sup> (Meehan 2010)

<sup>147</sup> (Shih No Date)

<sup>148</sup> (Shih No Date)

by 100 to get the percent efficiency of the power output.<sup>149</sup> The following table will show the percent efficiency of the different types of solar plants that were previously introduced.

**Table 4: Percent Efficiency of Solar Plants**

Type of System	%Efficiency
Solar Trough System	18.0
Solar Power Tower	16.2
Solar Dish/Engine System	30.0

Source: National Renewable Energy Laboratory, Professor Chiang Shih, SolarPaces

The table above shows that the Solar Dish/Engine System is the most proficient with 30 percent efficiency while the Solar Trough System and Solar Power Towers are in the same range. A Solar Dish/Engine System has about double the percent efficiency when comparing it to a Solar Power Tower.

### Advantages of Brightfields

As the market for alternative sources of energy increases, more options are available to go “green.” Since El Paso’s weather is mostly conducive to solar energy, one of the alternatives the city could focus on is constructing Brightfields. Harnessing this type of energy could benefit the City of El Paso and its citizens in many ways.<sup>150</sup> If a plant were to be developed, free solar energy would be in constant supply for the city.<sup>151</sup> As technology advances, it is not essential that there are only clear skies in order for solar energy plants to be effective. Equipment now allows one to use solar energy on cloudy and overcast days.<sup>152</sup> Other advantages that solar energy offers are energy security and diversification in a way that the need for fossil fuels is reduced. By using this kind of technology, over hundreds of thousands of tons of greenhouse gases are offset by not burning fossil fuel.<sup>153</sup>

### Job Creation

It has been estimated that the State of Texas is capable of bringing \$5B from the solar energy market by 2015. If Texas meets the minimum requirements of producing 2,000 megawatts by 2020, there will be approximately 21,500 new jobs created. Most of the jobs created with the 2020 deadline would come from manufacturing and installation. In Texas alone, if there was a minimum of 4,000 megawatts produced, there would be 82,000 jobs during construction and 2,700 jobs once it is on commission.<sup>154</sup>

A solar power plant under construction in Doña Ana covers approximately 450 acres of land and can potentially produce 92 megawatts.<sup>155</sup> Taking this into consideration Community Scholars came up with the following numbers to compute how much electricity a plant on the Asarco site could produce. A plant the size of the approximate 120 acre Asarco site could produce about 26

<sup>149</sup> (Ask the Van 2006)

<sup>150</sup> (Green Planet Solar Energy 2010)

<sup>151</sup> (Green-Planet-Solar-Energy.com No Date)

<sup>152</sup> (Shih No Date)

<sup>153</sup> (El Paso Electric Company No Date)

<sup>154</sup> (Public Citizen, Environment Texas, Vote Solar 2009)

<sup>155</sup> (El Paso Electric Company No Date)

megawatts which could power about 8,000 local homes. Besides powering homes each megawatt produced has the potential to create between 15 to 30 permanent jobs.<sup>156</sup> Taking this into consideration, the Asarco site has the potential to produce approximately 390 to 780 jobs. However it is important to note that even though solar plants do create substantial amounts of jobs during the construction phase, only a few full time employees are needed to keep a solar energy plant running.<sup>157</sup>

### **Impacts of Other Solar Energy Plants**

For the purposes of this report, Community Scholars has chosen to compare other successful solar energy plants in order to create a model of potential effects on the City of El Paso.

Santa Teresa El Paso electric has signed a power purchase agreement for construction of a full capacity 92 megawatt concentration solar power plant. The facility is to be built in Doña Ana County, New Mexico and will be owned and operated by NRG Energy. The plant, scheduled to be opened by the summer of 2011, will supply energy to as many as 30,000 El Paso Electric residential customers. The plant will be constructed on approximately 450 acres of property in Doña Ana County. The land lot is well-suited for eSolar's modular solar power tower development because it is a flat open space. It is nearby to an industrial development and will not interfere with current cultural or environmental resources.<sup>158</sup>

### **Wind Energy**

Wind energy is another form of solar energy. Wind currents are caused by the irregular solar heating of the air, earth's uneven face and its rotation. Wind currents can be harvested with wind turbines that convert kinetic energy into usable electricity.<sup>159</sup> To be able to convert the kinetic energy into usable electricity a wind farm requires minimal wind speeds of around 12 miles per hour.<sup>160</sup>

### **Types of Wind Turbines**

There are two types of wind turbine systems, the regular wind turbines and the MagLev wind turbines. These two systems require similar technology, but each demand different types of terrain to be effective. Common windmills can be built almost anywhere while MagLev wind turbines need wide, open land to function.<sup>161</sup> Aside from this, each of the turbines yields different percentage of electricity. In the following table both types will be compared.

-- Continued on Next Page --

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<sup>156</sup> (Florida Council of Economic Advisors at Florida TaxWatch 2009)

<sup>157</sup> (Armario 2009)

<sup>158</sup> (El Paso Electric Company No Date)

<sup>159</sup> (The United States Department of the Interior Bureau of Land Management 2009)

<sup>160</sup> (American Wind Energy Association 2008)

<sup>161</sup> (MagLev 2008)

**Table 5: Maglev Wind Turbine vs. Common Wind Mills**

Approximate	One MagLev Wind Turbine	1000 Common Windmills
Households Powered	750,000	500,000
Land Use	100 acres	64,000 acres
Cost	\$53M	\$3.5B

Source: Basantani; Windustry

One MagLev Wind Turbine produces enough energy to power approximately 750,000 homes. On the other hand, 1000 common windmills merely produce enough to power roughly 500,000 homes. This is about two thirds of what one MagLev produces. Another difference between the two types of wind energy sources is the amount of land needed to function. One MagLev wind turbine requires about 100 acres to work, while 1,000 common windmills need around 64,000 acres to function properly and produce roughly the same amount of electricity. With the land that 1,000 common windmills require, one could build approximately 63,900 MagLev wind turbines. The cost is also in the high extremes when comparing the two. MagLev costs roughly \$53M for each unit.<sup>162</sup> One thousand common wind turbines cost approximately \$3.5B which is approximate \$3.5M per unit.<sup>163</sup>

### **Economic Impacts of Wind Energy**

Wind energy in Texas has the potential to produce around 8,700 megawatts of electricity. With this potential, by 2015 the state of Texas will be able to attract around \$18B over a twenty year period in the wind market and be able to produce roughly 65,000 jobs during development.<sup>164</sup> During construction, a typical wind farm needs about 300 workers. In relation to jobs, one worker is needed for every 17 megawatts produced. Also to every indirect job within the multiplier effect, 1.15 jobs are created with every direct job. With this effect, about another 350 indirect jobs are created during the construction of a typical wind farm.<sup>165</sup> In a period of 20 years after construction is completed, approximately 77,000 jobs new jobs would be produced to keep a constant supply of wind energy.<sup>166</sup>

### **Similar Sites and Projects**

For the purposes of this report, Community Scholars has chosen to compare other successful wind energy plants in order to create a model of potential effects on the City of El Paso. Two examples are the Southwest Mesa Wind Project and the Steel Winds Wind Farm. The Southwest Mesa Wind Project is owned and operated by West Texas Energy Partners. This plant consists of about 100 wind mills that produce up to about 75 megawatts of electricity, which is enough to power 20,000 homes. This project sits on top of a 2,000 foot mesa, a flat tableland with steep edges, in the vicinity of McCamey, Texas. Most of the businesses activities provided have to do with the construction of the project. During this construction phase around 200 jobs were provided to local subcontractors. Today the wind farm provides enough electricity to power

<sup>162</sup> (Basantani 2007)

<sup>163</sup> (Windustry & Great Plains Windustry Project 2010)

<sup>164</sup> (Tegen, Milligan and Goldberg 2007)

<sup>165</sup> (SEED Coalition; Public Citizen's Texas Office 2002)

<sup>166</sup> (Tegen, Milligan and Goldberg 2007)

more than 20,000 homes.<sup>167</sup> The Steel Winds Wind Farm is located on a brownfield and is composed of eight windmills. These mills produce 20 megawatts which is enough energy to power about 7,000 homes. The cost for each windmill is roughly about \$4.5M. The project will ultimately provide very few jobs.<sup>168</sup>

## **Manufacturing Companies**

Although Asarco was closed and forbidden to reopen by law, another possible redevelopment plan could include the introduction of a different kind of manufacturing company into the city. There are multiple possibilities as to what type of manufacturer could open a location.<sup>169</sup>

### **Heavy Manufacturers**

Heavy manufacturers, such as Asarco, are companies that refine minerals or transform metals into products. These industrial sites typically require a big plant and large amounts of land. Other examples include oil refineries and steel companies. These manufacturers are known to pollute areas around their company, but are necessary in order to provide raw materials used in “light” industries that produce consumer goods.<sup>170</sup>

### **Light and High Tech Manufacturers**

Light and High Tech manufacturers are also known as “footloose industries.” This refers to the idea that these industries have more liberties in choosing a location for operations. These companies usually do not require as much land in comparison to a heavy manufacturer and therefore are less likely to deal with property restrictions. These manufacturers typically produce products that are high in value but lower in weight. These companies do not require as much investment from their owners as a heavy industry does and their products are easier to transport due to their size. Examples of such corporations include toy manufacturers, food processors, and computer technology and communication equipment companies.<sup>171</sup>

### **Medical Manufacturers**

In a report published by the Institute for Policy and Economic Development, an idea in regards to a type of manufacturing company that could be recruited for the former Asarco site is a medical manufacturer. This type of industrial company has the potential to work closely with the University of Texas at El Paso and the Medical Center of the Americas.<sup>172</sup> A pharmaceutical plant creates and markets drugs that are used for medicinal purposes.<sup>173</sup> Opening a 10 acre pharmaceutical manufacturing plant would take approximately \$70M to construct and could possibly create over 1,500 jobs. The plant could potentially create about \$307M in economic revenue for the city and approximately \$41M through income in return for labor. Hypothetically,

<sup>167</sup> (Texas State Energy Conservation Office No Date)

<sup>168</sup> (Staba 2007)

<sup>169</sup> (Barlow 2008)

<sup>170</sup> (Barlow 2008)

<sup>171</sup> (Barlow 2008)

<sup>172</sup> (Institute for Policy and Economic Development 2008)

<sup>173</sup> (PhRMA 2010)

if multiple smaller medical manufacturers were developed, it would not benefit the city as much as the large plant. However, a small plant would still bring in approximately \$181M worth of economic output and almost \$40M for labor income. Creating a pharmaceutical plant is closely linked to the creation of higher paying jobs in the medical field for the area in which they are built.<sup>174</sup>

### **Automobile Manufacturers**

In 2002, the Chevrolet Company bought land on a brownfield site in Charleston, West Virginia.<sup>175</sup> The site, once home to the FMC East Plant, site was eventually revitalized. The totally area of the property is about 27 acres and took approximately two years to prepare for the completion of the current Chevrolet and Imports Parts and Services Center.<sup>176</sup>

In general, the automobile industry acts as an economical force for a community. It is responsible for producing approximately 60M cars and trucks nationwide per year. This industry provides almost 4M jobs directly and substantially more indirectly. Automobile manufacturers typically offer well paying jobs that include benefits for their employees.<sup>177</sup>

## **Discussion**

After extensive research, Community Scholars has determined multiple ideas that have been previously utilized in other brownfield redevelopments that can be used as a model for the Asarco site. Although some brownfield plans only focused on one major redevelopment plan, the smelter's land is too vast for one project. It is important to add that although there are other properties surrounding the area that are being considered for redevelopment, Community Scholars has decided to work only with the former smelting site for multiple reasons. Community Scholars believes that development on arroyos or mountainous terrain would take away from the aesthetic value of the area. Even though there are plans to redevelop the Cemex property that is adjacent to the smelter site, Community Scholars has excluded this parcel of land in our research due to the fact that it is currently owned by a third party rather than the custodial trust.

### **Conclusions**

There are currently three smokestacks located in the Asarco site. However, there is a spotlight on the debate that questions the existence of the infamous 828 foot smokestack. Settlement over the smokestack debate will not be determined until cost analysis and structure stability tests are performed. Although Community Scholars is an advocate for preservation of the stack, maintenance costs of millions of dollars could outweigh the historical value of keeping the landmark.

Along with the 828 foot smokestack, there are certain restrictions and requirements that Community Scholars has taken into consideration. The former smelter site is located in a central

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<sup>174</sup> (Institute for Policy and Economic Development 2008)

<sup>175</sup> (Pullin 2002)

<sup>176</sup> (Pullin 2002)

<sup>177</sup> (Harris 2007)

location of the city. This may be a major advantage for the redevelopment due to the fact that it has the potential to be a main attraction for citizens all over the community. On the other hand, some characteristics can contribute to obstacles that would be encountered during redevelopment by limiting the expansion of the potential redevelopment projects. This property is surrounded by railroad tracks and two major highways. In addition, the site is in close proximity to an international border. However, due to the magnitude of its approximate 120 acre size, Community Scholars has determined that multiple projects for redevelopment would be the best utilization of the property.

Through our research, Community Scholars has identified certain projects that benefit the economy. There are other projects that enhance the quality of life, but do not necessarily bring in as much income for the community. A green space on the site, for example, has the potential to create unity and better health within the community with walking trails and other recreational activities. However developing a green space on the Asarco site alone would be costly and would not likely bring in the economic profit that the city is looking for. Another project that could increase the local quality of life would be a commercial recreational area such as a sports facility. However, it could take a toll on tax payers and unless located in a concentrated part of the city, sports facilities typically do not create substantial revenue that is returned to the city. Although casinos have been sources of economic stimuli for other cities, the negative effects produced by impacts of increased crimes tend to outweigh the benefits.

Even though El Paso is taking steps to establish a transportation area in the city, this type of project would not be the best utilization of the property. A more densely populated area such as a downtown that does not have residential restrictions would best support such a project. Another idea commonly suggested by the public was a redevelopment project for a solar or wind energy plant. However, the site would not be the ideal location for this considering the availability of vast, flat land in the outskirts of the city. Also, a manufacturing company, in our opinion, would not be supported by the community because of the negative impact Asarco had upon the City of El Paso. Lastly, a project proposal that seemed to be widely supported by the citizens at local charrettes was an international pedestrian bridge across the river, uniting the Asarco site with Ciudad Juarez. Community Scholars chose to exclude this from our research due to the fact that the political climate of the area would not support such an idea.

In conclusion, the redevelopment projects built upon the site would need to be flexible for the future market and not just suitable for the local trends. The project would need to be timeless and remain an economic catalyst. As mentioned, the main site is vast, has many potential uses other than residential, and should not be tied to one “silver-bullet” project. The purpose of the plan is to provide a flexible framework that can accommodate many uses at a variety of scales. This is intended to enable future owners of the site to respond to changes and market opportunities as they occur.<sup>178</sup> Community Scholars has created a project proposal that will enhance the quality of life and benefit the local economy based on multiple interviews and in-depth research.

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<sup>178</sup> (Starkie 2010)

## Recommendations

Due to the potential and size of the Asarco site, Community Scholars has decided that the redevelopment that best benefits the City of El Paso would include multiple amenities that could potentially enhance the quality of life and local economy. This idea is consistent with that of Dover, Kohl & Partners, who believe that the site has too much potential for only one redevelopment project. Community Scholars has come up with one master plan that includes multiple projects that were modeled after other brownfield redevelopments and proposed at local charrette meetings.

One of the amenities is a mixed use commercial area. This commercial district would be a chain of diverse businesses such as retail and restaurants and also include office spaces built vertically to include smart growth ideology. Community Scholars would also like to include a medical research center to be incorporated within this mixed use commercial development. This research facility would work in conjunction with local universities such as the Texas Tech University Medical Center in order to enhance the city's progress in becoming a more medically based community. In order to supply a percentage of the energy that will be needed, Community Scholars suggests that the majority of the buildings include roof top solar panels to promote a more environmentally friendly community. In addition to the commercial area, Community Scholars recommends areas of green space. It would be ideal to include an outdoor amphitheater, serving as an entertainment attraction which could potentially enhance the quality of life in the community. This area would also include museums and a monument that preserves the historic value of Asarco and honors those who lost their lives during operation. Pieces of old machinery could also potentially be scattered throughout the property to act as memorials and public art.

To attract more visitors to the area, Community Scholars recommends that a well-known amusement park such as Six Flags should be brought to El Paso. This amusement park will be centered on an "Asarco smelter" theme. It would also be one of the only major amusement parks in the southwest United States between San Diego and San Antonio. The economy in the City of El Paso is highly dependent upon the citizens from Ciudad Juárez to act as consumers.<sup>179</sup> Due to these trends, an amusement park could potentially bring in substantial monetary income from Mexican tourists into the El Paso area. Although the surrounding population of the City of El Paso is not as large in comparison to that of San Antonio or Dallas as shown in the U.S. Census Bureau, if an amusement park is built, it still has the potential to bring large amounts of people to the area.<sup>180</sup> This amusement park will not only be a great tourist attraction, but will bring business to the commercial area, enhance the quality of life and stimulate the local economy.

Community Scholars would also like to preserve the smoke stack as an icon and possibly serve as a monument for the main entrance of the amusement park. However, if the demolition of the infamous stack does take place, as a compromise, Community Scholars believes that a half-sized replica should be created in order to serve as a reminder to the public of what was once there. In an effort to estimate an approximate cost for the construction of a replica stack, Community Scholars divided the original construction costs of the 828 foot smokestack in two and then accordingly adjusted for inflation. While we do realize that this is a very rough

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<sup>179</sup> (B. Cook 2007)

<sup>180</sup> (U.S. Census Bureau 2010)

estimate, it would approximately cost about \$5M for the construction of a 400 foot smoke stack.<sup>181</sup> This is half of the estimated cost needed to stabilize the current 800 foot smoke stack. To serve as a monument, a copper ring demonstrating the circumference of the original stack could be built around this new replica. The copper monument could include important dates in Asarco's history or names of those who lost their lives during the operation of Asarco.

Two issues that Community Scholars faced during our research in regards to the redevelopment of the Asarco site were access to the site and plans for parking. In order to avoid traffic congestion, Community Scholars recommends that on and off ramps from Interstate 10 and Paisano Drive should be constructed to make the site more accessible. Also, to make transportation more efficient, turnabouts could also be utilized to slow traffic and avoid collisions. Although parking garages tend to be more costly in comparison to open space parking, Community Scholars believes it is the best solution for site. Considering the fact that many experts are in favor of smart growth, parking garages would utilize the land more efficiently and potentially leave more opportunity for redevelopment.

The Asarco site is an area filled with historic value that can potentially be a great asset for the City of El Paso. Community Scholars has concluded that the best redevelopment plan for the Asarco property is one that incorporates multiple projects. The potential plan includes commercial use that includes a technology research facility, an amusement park, amphitheater and green space. Community Scholars believes that a further study and economic analysis should be performed to ensure that our proposal will ultimately benefit the City of El Paso. Regardless of the final plans for the Asarco site, Community Scholars believes that it is extremely important to choose a redevelopment plan that will substantially add the City of El Paso's local economy and overall quality of life.

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<sup>181</sup> (U.S. Department of Labor Bureau of Labor Statistics 2010)

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