



Partners for a Healthier Community, Inc.



Western Massachusetts

Casino Health Impact Assessment Report

January 2014

Partners for a Healthier Community, Inc.
Executive Director, Frank Robinson, Ph.D.



About Partners for a Healthier Community:

Partners for a Healthier Community (PHC) is a 501(c)(3) non-profit organization based out of Springfield, MA whose mission is to build measurably healthy communities with equitable opportunities and resources for all through civic leadership, collaborative partnerships, and policy advocacy. PHC is committed to improving the public's health by fostering innovation, leveraging resources, and building partnerships across sectors, including government agencies, communities, the health care delivery system, media, and academia.

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Casino Health Impact Assessment

What is the impact of a proposed casino on Western MA?

Overview of key findings

A casino opening in Western Massachusetts is likely to have a mix of **positive** and **negative** impacts on health determinants and health outcomes related to *jobs and employment*, *access to local casino gambling*, *traffic*, and *crime/public safety*. The extent to which the effects are positive or negative are dependent on the type of local and regional strategies put in place to promote positive impacts. Cross-sector collaboration and strategies that involve the casino operator, municipalities, government agencies, local businesses, regional planning and transportation organizations, public health agencies, local service providers, and other stakeholders have the greatest opportunity for synergy and positive impact.

The new resort casino also has the potential to impact health equity in the region. New employment opportunities may lead to a reduction in some existing health inequities depending on the strategies put in place to ensure that vulnerable populations have the opportunity to access needed jobs. Increases in exposure to near road-way air pollution and access to local casino gambling have the potential to increase existing health inequities as vulnerable populations may experience disproportionately negative impacts. Thus, it is important to carefully consider the effects on these vulnerable populations and identify strategies to mitigate identified negative effects.

Background

Casino gambling was legalized in 2011 under Chapter 194 “An Act Establishing Expanded Gaming in the Commonwealth,” which allows for “up to three destination resort casinos located in three geographically diverse regions across the state,” one of which is Western Massachusetts (Region B).

Massachusetts Expanded Gaming Act Regions



Source: Massachusetts Gaming Commission-
<http://massgaming.com/about/expanded-gaming-act/>

The Western Massachusetts Casino Health Impact Assessment (WMCHIA) was conducted from Spring 2013 to Fall 2013 by Partners for a Healthier Community (PHC) to assess the health effects of a new casino in Western Massachusetts and to make recommendations to mitigate negative and enhance positive predicted health impacts. Other lead partners included the University of Massachusetts and the City of Springfield Department of Health and Human Services. The WMCHIA was initiated because of questions and concerns raised by community members about how proposed casinos would impact health. The HIA originally focused on the three potential host communities: Palmer, Springfield, and West Springfield. As residents in two of the three communities voted not to allow the proposed casino in their community, the report focuses on the sole remaining potential host community as of December 2013, Springfield.



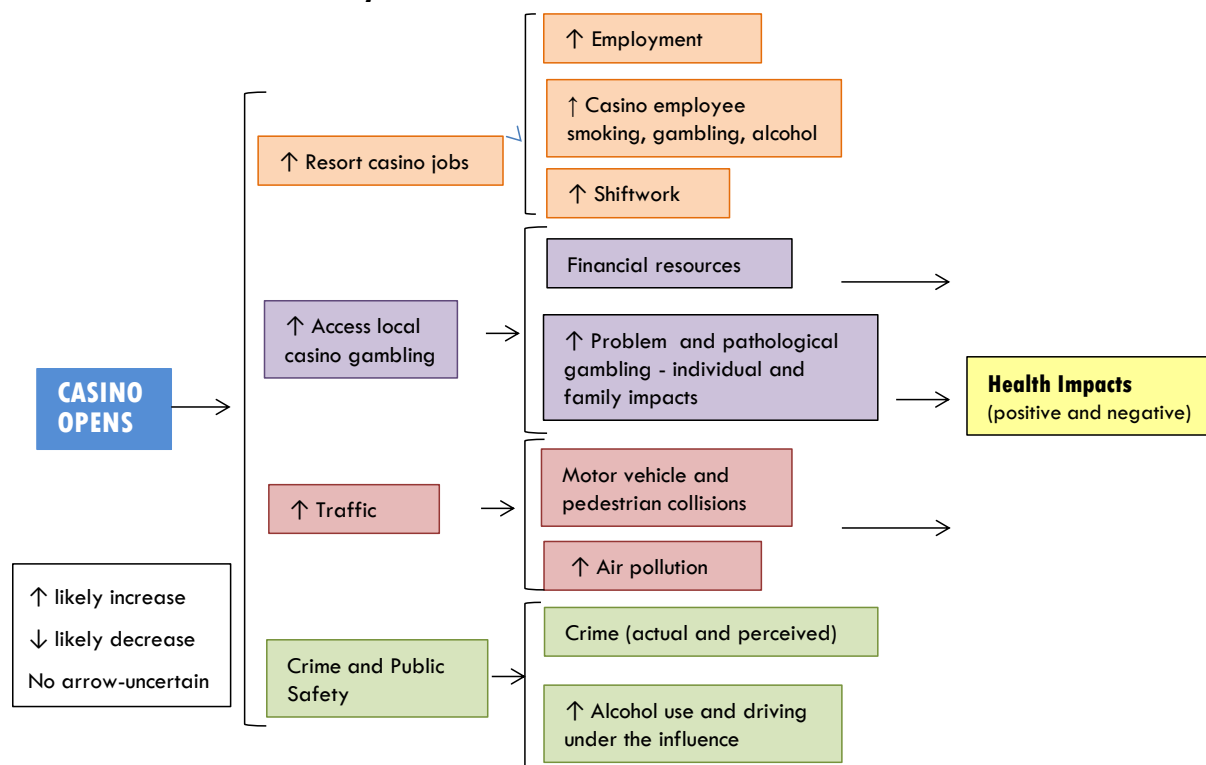
The WMCHIA’s goal was to inform decision-making related to the development and operation of a casino. It also strived to inform the Massachusetts Gaming Commission’s (MGC) licensing and regulation process, the MGC’s casino licensing decision, and the state-funded casino monitoring and evaluation project lead by the University of Massachusetts.

The WMCHIA report is intended to reflect community priorities and needs. Community input was incorporated throughout the entire project through a variety of mechanisms. The WMCHIA focused specifically on how the proposed western MA casino would impact health through **jobs and employment**, **access to local casino gambling**, **traffic**, and **crime and public safety** health determinant pathways. Other health determinants identified by stakeholders were recognized to have likely health impacts - such as economic development and tax revenue – yet were not included due to time and resource constraints. The WMCHIA also examined impacts on health equity.

What is HIA?

A systematic method utilized to proactively inform decision-making and promote the most beneficial health impacts using data, scientific research, evidence, and stakeholder input.

Health Determinant Pathways Assessed



Major Findings Key

Impact Direction		Impact Likelihood	
Positive	+	Likely	▲▲
Negative	-	Possible	▲
Uncertain	+ -	Unlikely	●
		Uncertain	▲▼

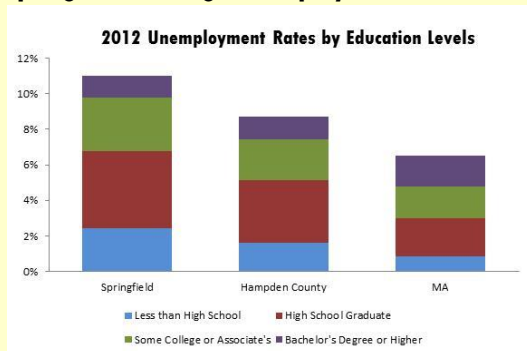


Major Findings

Jobs and Employment

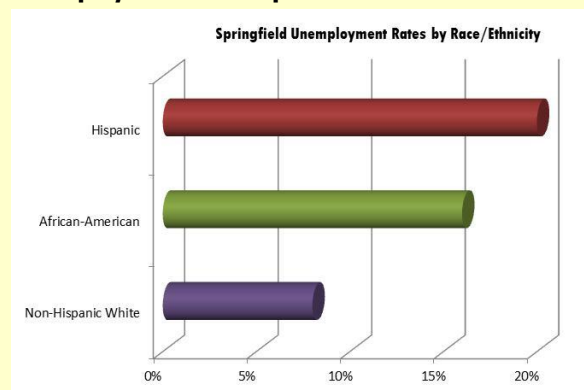
CURRENT CONDITIONS

• Springfield has high unemployment rates



U.S. Bureau of Labor Statistics

• Unemployment rate disparities exist



U.S. Census Bureau, 2007-2011

- Local and regional **barriers to employment** in entry-level positions exist, including limited: 1) workforce readiness capacity, 2) access to needed basic adult education and English as a second language courses, and 3) public transit service capacity.

IMPACTS

Employment & New Jobs

Impact Direction +
Impact Likelihood ▲▲

Anticipated 3,000 new jobs, 2,200 FTEs. Existing barriers could prevent those most in need of the new resort casino jobs from obtaining the jobs.

- The more a casino hires locally, the greater the positive benefits to impacted communities.
- Turnover rates may be as high as 40% for unskilled entry level positions (similar to other positions in hospitality and retail industry)

Income

Impact Direction +
Impact Likelihood ▲▲

Higher income associated with reduced risk for chronic disease, mental health conditions and lower mortality rates.

Casino Employee Risk Behavior

Impact Direction -
Impact Likelihood ▲▲

Casino employees have been found to have a higher prevalence of smoking, alcohol, and problem gambling.

Shiftwork

Impact Direction -
Impact Likelihood ▲▲

- Associated with increased risk for chronic disease, cancer and mental health conditions.
- A large proportion of resort casino employees will work shiftwork. An estimated 23-40% of casino gaming positions will work night shift work, which has the most risk for negative health impacts.

Summary of Recommendations

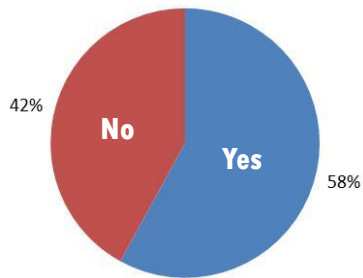
- Casino operator should clearly articulate plans to ensure local hiring and promote employee retention.
- MGC should provide funding to MA Casino Careers Training Institute to convene regional Workforce Collaborative to develop and implement cross-sector strategies to address local and regional workforce barriers, promote employment among the under and unemployed, and to address regional racial/ethnic disparities in unemployment.
- MGC and casino operator should provide funding 1) to conduct outreach to under and unemployed to connect them to needed education and training, and 2) for needed additional adult basic education and English language courses.
- Casino operator should work with the Workforce Collaborative to: 1) define skills needed for resort casino employment, 2) identify potential workforce shortages due to the new resort casino positions and work with the Workforce Collaborative to create training programs for these categories, and 3) articulate transparent career paths as described in the Expanded Gaming Act (Section 119.01(34)) and utilize incentives to encourage employee participation in these career paths.
- MGC should require casino operator to monitor and report employment characteristics, including but not limited to residence, race/ethnicity, sex, veteran status. This information should be made publicly available by the MGC.
- Casino operator should implement health and wellness programs to reduce risk for increased incidence of employee smoking, alcohol abuse, and disordered gambling.
- Casino operator should educate employees about strategies to reduce harmful health effects of shiftwork, consider providing products to mitigate shift-work related sleep disruption, and implement best practice policies to remediate harmful effects of shiftwork (e.g. rotating shifts forwards, adequate time for sleep between shifts).

Major Findings

Access to Local Casino Gambling

CURRENT CONDITIONS

MA Residents Gambled in Past Year (2012)



Top types reported: lotto /scratch tickets (45%) casino (22%)

***Bring it on Home. An Overview of Gaming Behavior in New England** UMass Dartmouth, 2012.*

- Estimated **prevalence of disordered gambling** is approximately 2.6% (1.2% problem gamblers, 1.4% pathological gamblers).
- Springfield has large number of at-risk populations for disordered gambling.

At-Risk Groups	Springfield Population
Living below poverty level	27%
African-Americans	20%
Hispanic/Latinos	37%
Young People	13 higher education institutions in area

- Very few people with gambling disorders seek treatment in the region.
- Lack of understanding of problem and pathological gambling as a serious problem.
- Limited local capacity to identify and treat gambling disorders.

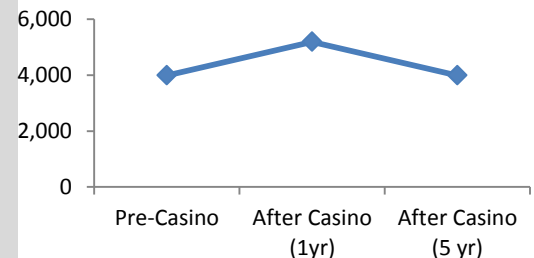
IMPACTS

Problem & Pathological Gambling

Impact Direction —
Impact Likelihood ▲▲

- Affects health through decreased financial resources/job loss and comorbidity with other risky behaviors, addictive disorders, and mental health conditions. Family members experience negative health impacts due to increased risk of spousal/child abuse and neglect, suicide, and gambling addiction.

Estimated Impact of Casino on Number of Disordered Gamblers in Springfield



**Estimated using U.S. Census data, MA disordered gambling prevalence of 2.6% (Bring it on Home, UMass Dartmouth, 2012), and 30% increase after 1 year (Jacques 2006)*

- Populations experiencing some of the greatest health inequities in our county are also vulnerable to disordered gambling, particularly low income individuals and some racial/ethnic groups.
- The younger one starts gambling, the greater the risk of becoming a problem gambler later in life.

Change in Financial Resources (general population)

Impact Direction + —
Impact Likelihood ▲▼

Research is inconclusive as to whether access to local casino gambling disproportionately impacts financial resources of low income individuals.

Summary of Recommendations

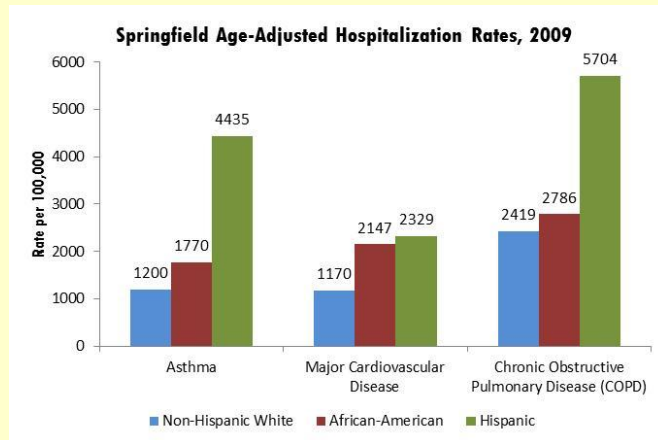
- The Western MA Council for Gambling Accountability should work with the MA Department of Public Health to convene a Problem Gambling Collaborative to develop best practice cross-sector strategies to identify, treat and manage pathological gambling.
- Funding should be provided from the Public Health Trust Fund for the MGC, casino operator, Problem Gambling Collaborative and Host Community to develop evidence-based communications strategies to raise awareness of disordered gambling as a public health problem.
- Casino operator should 1) have responsible gambling information centers in their facilities in addition to the Expanded Gaming Act's required substance abuse and mental health counseling center, and 2) implement best practice strategies to assist disordered gamblers in managing their addiction as recommended by the Problem Gambling Collaborative and MGC.
- Evidence-based prevention strategies should be promoted by the MA Department of Elementary and Secondary Education, MGC, and the Problem Gambling Collaborative in schools and at institutes of higher education.
- Casino operator should educate employees about increased employee risk of problem gambling.
- Public Health Trust Fund should be used for disordered gambling training and certification of local mental health and addiction providers.
- All strategies to prevent, treat and manage gambling disorders should be accessible to vulnerable populations, including ensuring that they are culturally competent, accessible and affordable.

Major Findings

Traffic

CURRENT CONDITIONS

- Springfield has **high hospitalization rates for diseases affected by air pollution** - asthma, cardiovascular disease, COPD - and **large racial/ethnic disparities**.



* MDPH, MassCHIP

- Large portions of Springfield, including the downtown area in which the casino will be located, are **Environmental Justice** communities.
- As an urban area, Springfield has greater access to PVTa transit bus service than other communities in the region, though residents have cited barriers to usage, particularly among employees working shift work during overnight hours or weekends.
- Highest traffic volume in the region occurs on I-91 at the northern Springfield limit (approximately 110,000 vehicles per day).
- Traffic volume on Springfield local likely casino access routes ranges from approximately 5,000 – 13,500 vehicles/day.

IMPACTS

Traffic Volume

A casino is anticipated to generate an estimated 15,000 – 30,000 new vehicle trips per day.

Air Pollution

Impact Direction —
Impact Likelihood ▲▲
Near Roadway ▲
Regional ▲

- High levels of traffic-related air pollution increase risk for asthma, CVD, and cancer. Children, older adults, and those with preexisting respiratory diseases are vulnerable to increased risk.
- Greatest impact of air pollution likely for those within 200m of roadways with high traffic volume (near roadway air pollution)
- In Springfield, traffic volume on likely local casino access routes could exceed thresholds for negative health impacts.
- Vulnerable populations in Springfield likely to be disproportionately impacted: children, older adults, African-Americans and Hispanics.

Motor Vehicle Collisions

Impact Direction —
Impact Likelihood ▲▲

Increases in traffic due to a casino may increase risk for motor-vehicle related injuries and fatalities. In particular, predicted increases in traffic volume in Springfield reach levels associated with increased risk for pedestrian injury in urban settings found in some studies.

Summary of Recommendations

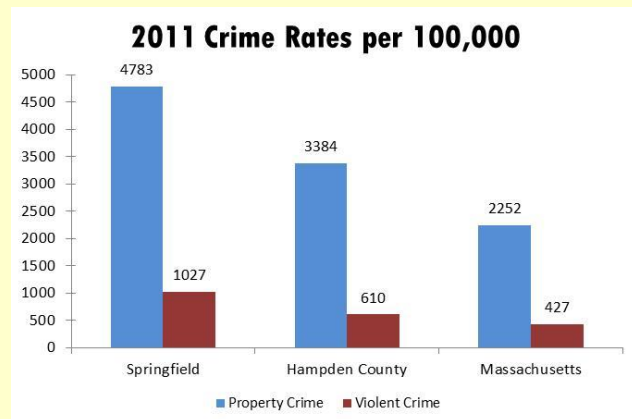
- MGC should provide funding to Pioneer Valley Planning Commission to convene a regional Transportation Collaborative to identify and implement best practice strategies to reduce likely casino-related traffic increases in the region and host community once a casino operator has been identified.
- Casino operator, host community, surrounding communities and PVTa should implement best practice strategies to promote the use of public transit and alternative modes of transportation. As part of this process, MGM should implement 1) the transportation demand strategies included in their traffic assessment (e.g. bikes for employees, employee promotion of public transit), and 2) their proposed Trolley Bus system, as discussed in the host agreement, using a fee structure that encourages usage and appropriate mechanisms to reduce impact on air quality.
- MGC should ask PVTa and the Massachusetts Department of Transportation to assess increase in public transit needs due to a casino and allocate appropriate funding to upgrade transit service as needed.
- The casino operator should assess potential for instituting public transit mechanisms for their employees (e.g. casino operator bus), particularly in the case where public transit options do not provide adequate service.
- Casino operator should provide funding to assess intersections in a mile radius of the proposed casino, and in partnership with municipal agencies, upgrade those found to be adversely impacted.
- Casino operator and municipal agencies should develop strategies to minimize impact of near roadway air pollution exposures on vulnerable populations through traffic demand management strategies or other evidence-based strategies to reduce exposure (e.g. barriers, roadside vegetation).

Major Findings

Crime and Public Safety

CURRENT CONDITIONS

- Springfield has crime rates 2x that of the state



- Evidence indicates that there is a **high perception of crime** in Springfield.
- In 2011, there were 90 driving under the influence (DUI) charges in Springfield.
- In 2011, **30% of fatalities** due to collisions in Hampden County **involved a driver that had a blood alcohol concentration above the legal limit** (greater than 0.08).

IMPACTS

Crime

Impact Direction —
Impact Likelihood ▲

- Crime is associated with negative physical and mental health impacts.
- Studies have had conflicting results on a casinos impact on crime, with those finding an increase finding an average of 10%.
- The extent to which a community is accepting of the proposed casino and prepares accordingly may impact crime rates.

Perception of Crime

Impact Direction —
Impact Likelihood ▲▼

- Perception of crime or lack of safety can also negatively impact health.
- Community environment contributes to perception of crime and can affect crime rates. Environmental design elements, such as enhanced lighting and infrastructure to support pedestrian activity, have been shown to deter crime and increase perception of safety.

DUI, Collisions & Fatalities

Impact Direction —
Impact Likelihood ▲▲

- Best available evidence suggests that **DUIs may increase** with likely increased access to free alcohol, thus increasing risk for motor vehicle collision-related injuries and fatalities.

Summary of Recommendations

- Community policing strategies - which includes a community partnership model - should be used by the local police department to monitor and address casino impacts on crime and perception of crime in the host community.
- A joint casino-host community effort should be established to 1) implement and enhance casino operators planned design elements that prevent crime, which includes proper lighting, amenities that promote pedestrian activity, and maintenance of private properties and public space, and 2) align these efforts with any related host community activities.
- Host community of Springfield and community development organizations should implement strategies to support the proposed MGM proposal and host agreement elements that increase foot traffic and “eyes on the street” by promoting connectivity between the casino, other City attractions (e.g. museums, Basketball Hall of Fame) and Main Street. Examples include publicly available maps, street kiosks, and cobblestone walkways.
- Best practice strategies should be implemented to reduce DUIs and associated fatalities, including: 1) funding from the host agreement community impact fund should be provided to the host community Health Department to conduct a campaign about risks and consequences of driving under the influence of alcohol in collaboration with community partners and the licensed casino operator, and 2) host community Police Department should conduct expanded sobriety checks and strictly enforce minimum legal drinking age and zero tolerance laws.

Major Findings

General

CURRENT CONDITIONS

- A number of regional needs exist that were identified as areas likely to be impacted by a resort casino, including:
 - limited public transit capacity due to funding challenges over time,
 - limited workforce capacity, including workforce readiness,
 - high crime rates and perception of crime in Springfield.
- Large health inequities exist in Hampden County and Springfield for African-Americans and Hispanic/Latinos.

IMPACTS

Regional Impact

Integrating resort casino plans with other initiatives in the region creates the greatest opportunity to address existing prioritized regional needs and increases the potential to positively impact health.

Health Equity

A resort casino has the potential to improve or worsen health inequities depending on strategies implemented.

Summary of Recommendations

1. The MGC should consider how resort-casino plans will impact **existing regional needs** and **health equity** by including the following in their evaluation of casino operator Phase 2 applications:
 - a. how the casino operator plans to leverage existing regional resources and feed into integrated strategies to address existing prioritized regional needs, including but not limited to: improved public transit and infrastructure to support alternative methods of transportation; regional workforce development and career pathway programs; livable wage employment; and addressing disordered gambling
 - b. the extent to which the casino operator describes plans to minimize negative health impacts and promote positive health impacts
2. A transparent, dynamic ***process should be established that ensures continued collaborative work between licensed casino operator, municipalities, community organizations, etc. during casino development and operation.*** The process should include 1) evaluation of the extent to which resort casino development and operation improves existing regional prioritized needs and health equity, 2) modification of plans as needed, and 3) reallocation of funding to support implementation of modified plans. As a part of this process,
 - a. MGC and the host community should create procedures or regulations to allow this type of dynamic process to take place.
 - b. Workforce, Problem Gambling and Transportation Collaboratives should review data and make any needed recommendations for modification of strategies and reallocation of funding to support these modifications.
 - c. MGC and host communities should make publicly available: gaming impact data and reports, impact reviews, and any recommended modifications to casino operator and collaborative strategies.



Report Guide

This report describes the process and findings of a health impact assessment (HIA) conducted to examine the potential health impacts of proposed casinos in Western Massachusetts (MA), and the subsequent recommendations to enhance positive and mitigate negative predicted impacts. The report will focus on four areas prioritized for inclusion based on community input and the relevant scientific literature: resort casino jobs and employment, access to local casino gambling, traffic, and crime and public safety.

The report consists of the following sections:

- **Introduction** - an overview of the casino licensing process, the Western Massachusetts proposed casino development, and the potential host community
- **Methods** - an overview of HIA, the Western Massachusetts Casino Health Impact Assessment (WMCHIA) Project, and WMCHIA methods
- **Assessment** - assessment of impacts that a casino would have through each focus area pathway, including: 1) a summary of scientific literature and evidence documenting how the opening of a resort casino would potentially impact health, 2) existing conditions in the potential Western Massachusetts resort casino host community and the county as a whole, and 3) predicted impacts of the opening of a resort casino on pathway indicators and health outcomes
- **Recommendations and Monitoring Plan** - includes both 1) best practice/evidence-based recommendations to enhance positive and mitigate negative predicted impacts and, 2) indicators to monitor implementation of recommendations and impacts predicted by WMCHIA
- **Strengths and Limitations** - strengths and limitations of the WMCHIA assessment and report
- **Conclusions** - summary of WMCHIA findings



Introduction

Casinos in Massachusetts

In November 2011, Governor Deval Patrick signed Chapter 194 “An Act Establishing Expanded Gaming in the Commonwealth” into law. The Act allows for “up to three destination resort casinos (Category 1) located in three geographically diverse regions across the state,” one of which is Western Massachusetts (Region B) (Figure 1).

The legislation also allows for the licensing of a single slot casino (Category 2). The Massachusetts Gaming Commission (MGC) is the independent body created by the legislation to oversee the licensing and implementation process. The MGC is responsible for reviewing casino license applications and choosing a casino operator for licensure in Western Massachusetts and the other state designated regions. They are also responsible

for implementing the Expanded Gaming Act legislation, which includes developing the processes for casino licensure and regulatory requirements for development and operation. In some cases, this includes creating regulations to govern these processes.

Figure 1: Massachusetts Expanded Gaming Act Regions



Source: Massachusetts Gaming Commission-
<http://massgaming.com/about/expanded-gaming-act/>

To be considered for licensure, resort casino applicants were required to submit Phase I applications in January 2013 (Table 1). The Phase I process assessed casino operator suitability and included background checks. Those casino applicants that were deemed suitable by the MGC are eligible to submit Phase II applications, which are required to be submitted by December 31, 2013. Phase II applications are the detailed applications that describe the proposed casino resort development plans and a number of other required components, including potential impacts and mechanisms to minimize identified adverse impacts, such as increased traffic. As part of their Phase II application, casino operators must successfully demonstrate the support of the host community in which they plan to site their resort casino through: 1) a signed agreement with the host community that identifies potential impacts to the host community and addresses those impacts, and 2) an affirmative referendum where a majority of host community residents vote to allow the casino in their community. In addition to a signed host community agreement, casino operators must submit signed surrounding community agreements for those communities designated as such through processes stipulated in the Expanded Gaming Act (205 CMR 125.00). Upon submission of Phase II applications, public hearings will be held in the host communities. The MGC has stated that it plans to issue a resort casino license for Western Massachusetts by April of 2014.

Table 1: Resort Casino Licensing Process and Timeline

Resort Casino Licensing Components	Timeframe
Phase I Resort Casino Applications submitted	January 2013
Host Community Agreements signed and approved	May – August 2013
Host Community Referendums conducted	July – November 2013
Phase II Resort Casino Applications submitted	October – December 2013
Host Community Public Hearings	Upon submission of administratively complete Phase II applications
Anticipated MGC licensing of Western Massachusetts resort casino	April - May 2014
Projected approximate opening of Western Massachusetts resort casino	Fall 2016

Western Massachusetts Casino Development Proposals

Four casino operators originally submitted Phase I applications for casinos that would be located in the host communities of Springfield, West Springfield, and Palmer. Two operators submitted applications for a casino in Springfield - MGM Resorts International (MGM) and Penn National. In April 2013, the City of Springfield chose to sign a single host agreement with MGM, thus removing Penn National from contention. Hard Rock International signed a host agreement with the town of West Springfield, but residents chose not to allow the casino in their community in a referendum held in September 2013. Similarly, Mohegan Sun signed a host agreement with the town of Palmer, but residents voted not to allow the casino in Palmer in a referendum held in November 2013. Thus, the remaining contender for licensure is MGM, with a proposed location in the south end of downtown Springfield (Figure 2).

Figure 2: Springfield Proposed MGM Casino Site Location



The Expanded Gaming Act legislation calls for a minimum capital investment of \$500 million by casino applicants. The proposed MGM resort casino development capital investment is an estimated \$800 million. The proposed development will include a casino, hotel, conference/convention area, restaurant and retail space, entertainment area, and a residential area among other amenities (Table 2).

Table 2: Proposed Casino Development Characteristics

Characteristic	MGM Proposal
Host Community	Springfield
Host Community Population*	153,552
Estimated Approximate Capital Investment**	\$800 million
Development area (s.f.) #	850,000
Anticipated Number of Gaming Machines##	3,000
Anticipated Number Gaming Tables##	75
Number of Hotels (Rooms Total) ##	1 (250)

*U.S. Census Bureau, 2012

**MGM Press Release, 7/2/13 (<http://www.mgmspringfield.com/news/new-north-citizens-council.aspx>)

#MGM website (<http://www.mgmspringfield.com/faqs/faqs.aspx> - accessed 10/21/13)

##Springfield/MGM Host Agreement

Sociodemographic Profile of Potential Host Community

The potential host community of Springfield is located in Hampden County, Massachusetts. It is the third largest city in Massachusetts and the fourth largest city in New England. Springfield experienced a thriving economy driven by the strength of its manufacturing industry through the 1960's, after which there was a sharp economic decline due to the weakening of the manufacturing sector.¹ In 2011, the largest employment sector in Springfield was the service industry (32%), followed by healthcare (28%).² Springfield has a younger population than Massachusetts as a whole with 40% of the population under age 24 compared to 32% for the state (Table 3). Springfield residents experience economic challenges with a median family income of \$41,454, which is almost half the median household income for the state overall and 33% less than the median household income for Hampden County. Springfield struggles with high poverty rates, with 27% of residents living below the poverty level, which is 2.5 times higher than the state and 1.5 times greater than that of the county. Children have particularly high poverty rates with an estimated 39% of children in Springfield living below the poverty level within the past 12 months.³ Economic racial inequities exist with African-Americans experiencing higher rates of poverty (24%) compared to white (19%) and Hispanic/Latino (17%) residents. Springfield has a racially/ethnically diverse population with the majority of Springfield residents being people of color and a sizeable foreign-born population including immigrants from Latin America, the former Soviet Union, Africa, and Asia. In 2012, Springfield had an estimated 65,735 residents in the labor force with an unemployment rate of 11%, which is almost double the state unemployment rate and 25% greater than the county. Educational levels

are lower than that of the state overall, with an estimated 55% of Springfield residents aged 25 years or older having a high school degree/GED or less in 2010.³ In the 2011-2012 school year, 57% of Springfield high school students graduated in 4 years compared to 85% for the state.⁴ Residents also experience housing related economic challenges, with an estimated 52% of Springfield residents bearing a housing cost burden, which is slightly higher than the percentage of Massachusetts residents that are housing cost burdened (45%). A housing cost burden is defined as greater than 30% of income spent on housing.³

Table 3: Springfield Sociodemographic Profile

Indicator	Springfield	Hampden County	Massachusetts
Population			
Total (count)*	153,552	465,923	6,646,144
White, Non-Hispanic (%)**	38%	68%	77%
African American, Non-Hispanic (%)**	20%	8%	6%
Hispanic/Latino (%)**	37%	20%	9%
Asian (%)**	2%	2%	5%
All Other (%)**	2%	2%	2%
Age Distribution*			
0 to 17 Years Old	27%	24%	22%
18 to 24 Years Old	14%	11%	10%
25 to 34 Years Old	13%	12%	13%
35 to 65 Years Old	35%	40%	41%
65+ Years Old	11%	14%	14%
Income**			
Median household income	\$41,454	\$61,800	\$83,371
Living below the poverty line (%)	27%	17%	11%
Children below poverty line (%)	39%	25%	14%
Employment			
Total Jobs (count)***	74,205	194,478	3,191,604
Unemployment****	11%	9%	7%
Education*****			
4-Year high school graduation rates (%)	57%	--	85%
High school drop-out rate (%)	10%	--	3%

*U.S. Census Bureau, 2012

**U.S. Census Bureau, American Community Survey 2007-2011 5-Year Estimates

***Massachusetts Department of Labor and Workforce Development, 2011

****U.S. Bureau of Labor Statistics, 2012

*****Massachusetts Department of Elementary and Secondary Education, School District Profiles, 2011-2012

Health Status in Potential Host Community

Health status can be examined by looking at the frequency of health promoting and risk behaviors, access to healthcare, and the prevalence of physical and mental health conditions. Table 4 provides Massachusetts Department of Public Health (MDPH) estimates for these measures obtained using Behavior Risk Factor Surveillance Survey (BRFSS) data from the years 2001-2011. The majority of estimates were made using 2008 data or later (see Appendix A for confidence intervals and survey years used). As can be seen, compared to the state, Springfield respondents reported less frequent engagement in health promoting behaviors, more frequent participation in health risk behaviors, less access to care, greater prevalence of physical health conditions, poorer health overall, and poorer mental health.

Table 4: Springfield Adult Health Prevalence Data - Behaviors, Physical and Mental Health #

Indicator	Springfield	Hampden County	Massachusetts
Health Behaviors and Access to Healthcare			
Fruits and Vegetable Consumption (5 or more daily)**	22%	25%	27%
Regular Leisure Time Physical Activity ***	44%	48%	52%
Current Smoker***	23%	21%	16%
Inability to see a Doctor Due to Cost**	13%	10%*	7%
Physical Health			
Obese (only) **	32%	26%	23%
Overweight or Obese**	67%	62%	59%
Hypertension**	31%	29%	26%
Heart Disease and Stroke**	7%	7%	6%
Asthma**	15%	12%	10%
Diabetes**	12%	10%	8%
Overall Health Status (poor or fair health)**	23%	17%	12%
Mental Health			
Current Depression**	15%*	10%	7%
General Mental Health (15 or more days of poor mental health)***	15%	12%	9%

#Behavioral Risk Factor Surveillance Survey, 2001-2011, with the majority of estimates made using 2008 data or later

*Prevalence estimate for the community meets one but not both DPH REPORTING RULES. (The estimates have adequate sample size, however, the precision of 95% CI is larger than the allowable requirements). The MDPH states "In order to provide data for more Massachusetts communities, we include town level estimates that may be based on relatively few respondents or have standard errors that are larger than average. The confidence interval (CI) for this community is wider than the normal limits set by MDPH. Therefore, the estimate for this town should be interpreted with caution."

**Three years average prevalence among adults in MA

***Five years average prevalence among adults in MA


Table 5: Springfield Age-Adjusted Hospitalization Rates: Total and by Race/Ethnicity

To better understand health status, it is important to understand not only how many people have a disease, but also how many people are experiencing poor health due to their disease or chronic conditions. Hospitalization data is a measure of morbidity that provides information about how many people are experiencing severe illness. Table 5 provides age-adjusted total and race/ethnic specific 2009 hospitalization rates for health outcomes examined in this health impact assessment, including cancer, cardiovascular disease (e.g., coronary heart disease and heart attack), cerebrovascular disease (e.g., stroke), mental disorders, and respiratory diseases (asthma and chronic obstructive pulmonary disease (COPD)) (see Appendix B for confidence intervals). Age-adjusted rates are utilized when comparing rates between geographic locations because differing age distributions can affect the rates and result in misleading comparisons. The most recent age-adjusted data available for this report was 2009. Unadjusted 2012 hospitalization rates are available in Appendix C. As can be seen in Table 5, rates for cerebrovascular disease, mental disorders, asthma, and COPD are higher in Springfield than those of the state.

	Springfield		Hampden County		Massachusetts	
	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000
Cancer						
Total	492	336	1,712	336	26,674	387
White*	275	310	1,374	317	24,651	379
Black**	106	391	141	461	1,490	453
Hispanic	105	355	156	325	1,090	326
Lung Cancer						
Total	64	45	262	52	3,682	50
White*	42	47	231	53	3,338	51
Black**	11	45	14	50	138	44
Hispanic	10	37	13	31	78	30
Cerebrovascular Disease						
Total	401	268	1,324	244	17,180	229
White*	209	206	1,050	218	14,629	216
Black**	86	346	98	351	1,035	346
Hispanic	98	437	149	443	769	272
Major Cardiovascular Disease						
Total	2,295	1,550	7,649	1,432	105,069	1,401
White*	1,161	1,170	5,967	1,261	89,914	1,335
Black**	553	2,147	625	2,163	6,329	2,083
Hispanic	526	2,329	887	2,546	4,533	1,596
Mental Disorders						
Total	2,765	1,820	6,593	1,421	53,395	786
White*	1,159	1,667	4,151	1,233	41,894	768
Black**	444	1,386	523	1,418	3,563	878
Hispanic	1,069	2,387	1,726	2,313	4,660	860
Asthma***						
Total	3,253	2,123	6,965	1,472	64,572	938
White*	898	1,200	3,433	946	45,981	803
Black**	556	1,770	653	1,819	6,916	1,789
Hispanic	1,732	4,435	2,728	4,350	8,478	1,809
COPD						
Total	4,977	3,297	13,230	2,662	151,342	2,101
White*	2,057	2,419	8,836	2,122	125,974	1,997
Black**	817	2,786	959	2,898	9,771	2,770
Hispanic	2,003	5,704	3,214	5,816	10,602	2,645

Source: MDPH MassCHIP, Massachusetts Hospitalization Dataset, 2009

*Non-Hispanic White **Non-Hispanic Black ***Asthma related hospitalizations



When examining hospitalization rates by race/ethnicity, it is clear that racial/ethnic disparities exist in Springfield and in Hampden County as a whole (Table 5). After adjusting for age, hospitalization rates were found to generally be 1.5 to 2 times higher for non-Hispanic African Americans and Hispanics as compared to non-Hispanic whites for cerebrovascular disease, major cardiovascular disease, mental disorders, respiratory system diseases, asthma, and COPD. Of note is that these disparities generally exceeded disparities found in the state overall. Asthma hospitalization disparities were found to be particularly large among Hispanics with rates more than four times that of non-Hispanic whites in Hampden County.

Methods

The Western Massachusetts Casino Health Impact Assessment (WMCHIA) project was initiated by Partners for a Healthier Community, Inc. (PHC) in Spring 2013 to examine the potential health impacts of proposed casinos in Western Massachusetts and to make recommendations to enhance positive and mitigate negative predicted impacts. The following provides an overview of HIA, the WMCHIA process, and the stakeholder engagement process.

What is Health Impact Assessment (HIA)?

Health Impact Assessment is a systematic method that uses data, scientific research, evidence, and stakeholder input to determine how a proposed policy or project would impact health. Based on the findings, recommendations are developed to either augment potential health benefits or reduce harmful effects. HIAs are proactive in that they occur before a decision is made so that the findings and recommendations can be used to ensure that the project has the most potential for beneficial health effects and to minimize any inadvertent negative health impacts. HIAs examine how health is impacted by the decision through health determinants, which are the social, environmental, and economic factors that influence health. HIAs use best available evidence in the assessment to make predictions. This may include both quantitative and qualitative evidence (e.g. interviews). HIAs also actively involve stakeholders throughout the process.

The promotion of **health equity** is an important goal of HIA and of the WMCHIA project. Oftentimes, processes or decisions may inadvertently negatively impact health equity. HIAs strive to identify health equity impacts so that decisions have the best opportunity to promote equity.

The concept of **health equity** is everyone having “... a fair opportunity to attain their full potential and, more pragmatically, that no one should be disadvantaged from achieving this potential, if it can be avoided. Based on this definition, the aim of policy for equity and health is not to eliminate all health differences so that everyone has the same level of health, but rather to reduce or eliminate those which result from factors which are considered to be both avoidable and unfair. Equity is therefore concerned with creating opportunities for health and with bringing health differentials down to the lowest levels possible.”⁶

HIAs typically have six primary steps:⁵

- **Screening:** determines whether an HIA is needed and would have value given the decision-making process, timeframe, and other contextual factors
- **Scoping:** determines the focus of the HIA (e.g. population, health determinants, and health outcomes to be examined), research methods, and a plan for completing the assessment
- **Assessment:** predicts impacts of decision on health by describing 1) baseline conditions, 2) scientific literature and other evidence characterizing impacts on health determinants and health, and 3) an analysis of how the decision will likely affect the target population, given baseline conditions and the evidence
- **Recommendations:** provides strategies to strengthen positive and mitigate negative health impacts
- **Reporting:** communicates HIA findings and recommendations to stakeholders and decision-makers
- **Monitoring:** tracks the impact of the HIA on decision-making, health determinants, and health outcomes

WMCHIA Overview

The WMCHIA was initiated by Partners for a Healthier Community, Inc. (PHC) because of questions and concerns raised about how proposed casinos would impact communities in Western Massachusetts. A number of casino-related assessments were being conducted, however, to our knowledge none specifically focused on health. With the support of our local community stakeholders and the Massachusetts Gaming Commission (MGC), PHC applied for and received a demonstration grant from the Health Impact Project, a partnership of the Robert Wood Johnson Foundation and Pew Charitable Trusts, to conduct an HIA of the proposed casinos in Western Massachusetts. The grant was intended to build capacity to conduct HIAs while completing the HIA project. The WMCHIA was originally planned to focus on Springfield, MA, but the scope was expanded during the screening process to include all the potential resort casino host communities to maximize the potential for the HIA to add value to the casino licensing decision-making process. The WMCHIA was not intended to advocate for or against casinos in Western Massachusetts, but rather to identify opportunities to improve health impacts. The project also had a strong focus on identifying opportunities to promote health equity, as a number of health inequities were known to exist in the region. In regards to racial/ethnic equity, since word choice matters, the report will use the term “people of color” rather than “minority” whenever possible as the term “minority” is outdated, carries a subordinate connotation, and in the case of Springfield, is inaccurate as people of color are the majority.

WMCHIA Project Management

The project management framework included the HIA Core Team and Advisory Committee.

- **The HIA Core Team** was primarily responsible for completion of the HIA and was made up of PHC and the other lead partner organizations on the grant – University of Massachusetts, Amherst Department of Public Health and Health Sciences; and the Springfield Department of Health and Human Services.
- **The Advisory Committee** provided guidance to the Core Team over the course of the project (see Stakeholder Engagement) and consisted of community stakeholders, experts, municipal representatives and other key decision-makers.

Timeline

Though the project officially began in March 2013, the assessment process did not fully begin until May 2013 after Training and Scoping Session was conducted by our grant-funded technical assistance providers, Human Impact Partners. As the HIA timeline is driven by the casino licensing decision-making process, the HIA was completed over the course of the summer and early fall with the final draft of the HIA report completed in November and the final report anticipated to be released in early January 2014.

Goals

The WMCHIA goals have evolved over the course of the project to ensure that the HIA was relevant to the decision-making process. The primary goals of the WMCHIA are as follows:

- ▶ Promote the consideration of potential health impacts in decision-making related to the licensing, development, and operation of a casino in Western Massachusetts, particularly focusing on the following decision points: implementation of host community agreements, casino operator Phase II license applications, host community public hearings, MGC licensing and regulation process and decision, and selected casino operator’s planning for development and operation

- ▶ Recommend possible health or health-related indicators for the MA Gaming Commission's casino monitoring and evaluation plan
- ▶ Promote the use of HIAs in policy decisions in Western Massachusetts

WMCHIA Methods

Screening

As described above, screening was conducted early in the process to decide whether an HIA was appropriate. It was determined that an HIA would provide important information, was feasible, and would add value to the decision-making process based on the following:

- Strong interest by local stakeholders in examining health impacts, which were generally not anticipated to be included in other casino-related assessments
- Interest by the MGC, one of the primary decision-makers, in having an HIA conducted and having active stakeholder engagement in the HIA process
- Possible large health impacts in the potential host communities with the potential to decrease or increase existing health inequities depending on casino licensing, development and operating decisions

Scoping

During the scoping process, the parameters for the assessment were defined to include specifications of: the target population, prioritized health determinants and outcomes, research questions, and research methods and plans. Several factors were considered when defining the scope, including: stakeholder input; the body of scientific literature and evidence; and feasibility, which was primarily based on available resources and the project timeline. Stakeholder input was an important component of the scoping process as a goal of the project was to ensure that the assessment reflected community stakeholder priorities. The following describes the WMCHIA scope for important parameters used to guide our assessment.

WMCHIA Target Population

- ▶ **Local Target Population:** During the scoping process, the primary target populations were determined to be the potential host communities, which at the time were Palmer, Springfield, and West Springfield. Over the course of the project, one of the two Springfield casino applicants and the West Springfield and Palmer applicants were removed from consideration during the host community negotiation and referendum process. Thus, Springfield was the sole remaining potential host community as of November 2013. However, Palmer and West Springfield were included in stakeholder engagement activities and assessment activities as they were possible host communities throughout the summer, and in the case of Palmer, into late fall. Though the HIA Core Team recognized that there would be impacts to surrounding communities and the region, it was acknowledged that including communities beyond the host communities would be beyond the scope of the HIA due to the short timeframe and available resources to conduct the HIA.
- ▶ **Regional Target Population:** When examining regional impacts, the scope was limited to Hampden County, which is the county in which all three potential host communities are located. Though we recognize that impacts are likely to extend beyond the county, assessment of communities beyond Hampden County was beyond the scope of the HIA.

WMCHIA Prioritized Health Determinants, Health Outcomes, and Research Questions

Health determinants and outcomes to be assessed in the HIA were identified through the creation of pathway diagrams. These diagrams were used to guide the assessment process and illustrate potential pathways by which the opening of a casino would impact health determinants, such as employment, and subsequently health. The pathways were created by the HIA Core Team, stakeholders, and others at the two-day HIA Training and Scoping Session. They were then refined and prioritized based on 1) stakeholder input at Advisory Committee meetings, community forums, and an online survey; 2) scientific literature/evidence supporting the pathway's impact on health; and 3) feasibility to complete an assessment of the pathway and predict health impacts. As part of this process, we also considered whether the pathways were relevant to each of the three potential host communities at the time (Palmer, Springfield, and West Springfield) and the relative importance of each pathway to each community. Pathways were not prioritized if they were only relevant to one of the potential host communities.

The *initial set of prioritized pathways* for inclusion focused on how a resort casino would impact health due to changes in 1) jobs and employment, 2) traffic, 3) access to local casino gambling, 4) crime and public safety, 5) housing displacement, and 6) city/town revenue. The housing pathway was deprioritized after further assessment indicated that the proposed casino developments would not likely impact displacement to the extent originally believed. The city and town revenue pathway was also deprioritized because it was determined that it was not feasible to assess this pathway given the project's short timeframe for completion and limited resources, though it was recognized as an important impact. Other *important impacts also considered but not included* were the potential impacts that a resort casino would have on city infrastructure and public safety capacity and on economic development. These pathways were considered for inclusion, but were not among the top prioritized pathways and could not be included in our assessment due to time and resource constraints.

Thus, the *final set of prioritized pathways* were 1) jobs and employment, 2) traffic, 3) access to local casino gambling, and 4) crime and public safety. These priorities were also the top community priorities identified through the community forums and the online survey (see Appendix D for community forum and survey results). The jobs and employment pathway focused primarily on the effect of new resort casino jobs on unemployed community members due to time and resource constraints. Prioritized research questions were then developed to examine each component of the pathway diagrams.

Assessment

A variety of data sources were utilized to develop 1) a baseline data profile and summary of existing conditions in each host community, and 2) a summary of the scientific literature and evidence describing how a casino would impact health through the prioritized pathways. Baseline and existing conditions data was obtained through publicly available data sources (e.g., U.S. Census Bureau, U.S. Department of Labor Statistics), casino assessments, and stakeholder and expert interviews. The summary of evidence describing casino impacts through the pathways was obtained through 1) literature searches conducted using key search terms in academic databases (e.g., PubMed, Google Scholar), 2) internet searches, and 3) content expert interviews. The baseline conditions and evidence summary were used to predict the potential impact of a casino on health in the potential host communities through the prioritized pathways. Whenever possible, methods were used to estimate quantitative impacts. Qualitative impact predictions were made if quantitative estimates were not possible. The assessment report was reviewed by content experts, key stakeholders, and the Advisory Committee.

Recommendations

Recommendations were developed based on assessment findings, evidence, best practices, and local needs. Recommendations were developed by the HIA Core Team with the assistance of content experts and key stakeholders, and were reviewed by the Advisory Committee.


Stakeholder Engagement

Stakeholder engagement was an important component of the WMCHIA project as it was initiated in large part due to stakeholder interest in having a better understanding of how a casino in the potential Western Massachusetts host communities would impact health. Stakeholder input was sought for all stages of the HIA and incorporated into the HIA process.

Methods of Engagement

The primary mechanisms used to engage stakeholders were:

- **Advisory Committee** – An Advisory Committee consisting of local and regional stakeholders, HIA and content area experts, municipal leaders, and representatives of the MGC was created to 1) provide necessary technical and community expertise needed for the HIA, 2) ensure the input of diverse stakeholders in the HIA, and 3) assist in disseminating HIA information to their broader constituencies. The Advisory Committee met seven times over the course of the project to provide feedback and input on WMCHIA processes and activities. The Advisory Committee also reviewed and provided substantial feedback on the WMCHIA report and recommendations and supported final report findings and recommendations.
- **Introductory Workshop on HIA and the WMCHIA** – A half-day workshop on HIA that included an overview of the WMCHIA was held early in the HIA project as part of a 2-day HIA training. Key regional stakeholders and decision-makers were invited to attend to better understand HIA and the WMCHIA project. Fifty-five attendees participated in this introductory HIA workshop.
- **Community Forums** – A community forum was held in each potential host community (Palmer, Springfield, and West Springfield) to raise awareness of the Western Massachusetts Casino HIA and to better understand community stakeholder perceived impacts and priority areas of interest. The Palmer and Springfield community forums were held in May and June 2013 and informed the scoping process. Despite the project's best efforts, we were unable to hold the West Springfield forum until the assessment phase of the process. West Springfield community forum input was used to help better understand potential impacts and to ground truth our pathway diagrams. See Appendix D for a summary of forum and survey findings.
- **Online Survey** – Information was gathered through an online survey soliciting host community resident input on perceived impacts of a resort casino and priority impact areas as part of the scoping process. The survey was open to respondents from all three potential host communities for two weeks. A total of 106 participants responded to the survey during this timeframe. See Appendix D for a summary of survey and forum findings.
- **Stakeholder Interviews and Community Contacts** – Over 40 interviews and community outreach contacts were conducted with a wide range of community stakeholders representing a variety of sectors from each of the three host communities, and the region as a whole, to better understand 1) host community characteristics and processes, 2) beliefs and concerns about how a casino would impact host communities, and 3) potential impacts in the host communities. These interviews and community contacts were also used to inform stakeholders about the WMCHIA project and activities. See Appendix E for organizations and stakeholder groups that were involved in interviews or community contacts.

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- **Media** – The media was engaged in an effort to raise community-wide awareness of the Western Massachusetts Casino HIA and findings. A press release was issued to inform community residents about WMCHIA and the community forums. The local newspaper and several local television stations reported on the community forums and the WMCHIA.
 - **Website** – PHC solicited community feedback and posted WMCHIA information on its website. The Advisory Committee and existing community networks helped to disseminate the website link.
 - **WMCHIA Email List** – Project email updates were sent to individuals on the WMCHIA email list, which included those individuals that attended WMCHIA events, others that expressed interest in receiving project information, Advisory Committee members, and various community and neighborhood networks in the impact areas.
 - **Presentations** – Presentations on WMCHIA were made to Springfield City Council’s Casino Committee and the Springfield Public Health Council.

Stakeholder Groups Engaged

A stakeholder analysis was conducted to identify the various stakeholders that would be impacted by a casino in Western Massachusetts and to prioritize those that would be engaged in our outreach efforts. Stakeholder sectors identified included:

- host community municipal governments including elected officials, health departments, public safety departments, law enforcement
- host community residents
- economic development, business, and workforce development agencies
- planning agencies
- public health, healthcare, and mental health providers
- faith-based organizations
- higher education and community colleges
- social and environmental justice organizations
- transportation agencies
- civic associations
- immigrant organizations
- compulsive gambling organizations
- local non-profits and funding organizations
- elementary and secondary education organizations
- pro- and anti-casino initiatives
- casino operators
- MA casino gambling regulatory agency
- other primary decision-makers and impacted community organizations

Individuals representing these sectors were invited to participate on the WMCHIA Advisory Committee to ensure that stakeholder input was included throughout the process. In addition, we actively sought representation from

each of the three potential host communities – Palmer, Springfield, and West Springfield. We also strived to ensure that there was diverse representation by sex and race/ethnicity. We had 24 individuals actively participate on our Advisory Committee representing 23 different organizations and departments. Below is a list of the organizations that participated. The City of Springfield was represented on our Core Team by the City’s Department of Health and Human Services Director.

WMCHIA Advisory Committee Representation:

• Arise for Social Justice	• Massachusetts Department of Public Health	• Springfield Police Department (retired chief)
• Behavioral Health Network	• Massachusetts Gaming Commission	• Town of Palmer, Health Department
• City of West Springfield, Health Department	• New North Citizens' Council	• Town of Palmer, Planning Department
• Develop Springfield	• Palmer Town Council	• United Council of Churches of Greater Springfield
• Greater Springfield Chamber of Commerce	• Partners for Community/United Farm Workers	• United Way of Pioneer Valley
• Holyoke Community College	• Pioneer Valley Planning Commission	• University of Massachusetts, Amherst
• Irene E. And George A. Davis Foundation	• Regional Employment Board of Hampden County	• Western MassCOSH
• Lutheran Social Services	• Springfield City Council Casino Site Committee	

Key stakeholders from the sectors identified above were also engaged by inviting them to the half-day Introduction to HIA and WMCHIA Workshop held in May 2013. Interviews with key stakeholders, including those that were not able to participate in our Advisory Committee, were conducted to ensure that their input was included as part of our scoping and assessment process. Interviewees included representatives from the Pioneer Valley Transit Authority, Massachusetts Casino Careers Training Institute, Massachusetts Council of Compulsive Gambling, Gandara Center, Behavioral Health Network, Hampden County Regional Employment Board, host community municipal governments, Pioneer Valley Planning Commission, Lutheran Social Services, Jewish Family Service of Western Massachusetts, and a number of other organizations (see Appendix E for list of organizations interviewed).

Efforts were also made to engage each of the three casino operators seeking licensure in Western MA. Core Team members held interviews with each of the three casino operators to inform them about the WMCHIA and to request data and information that would be used to inform the HIA assessment. The casino operators were also provided a copy of the draft WMCHIA report and were invited to submit feedback.

Assessment

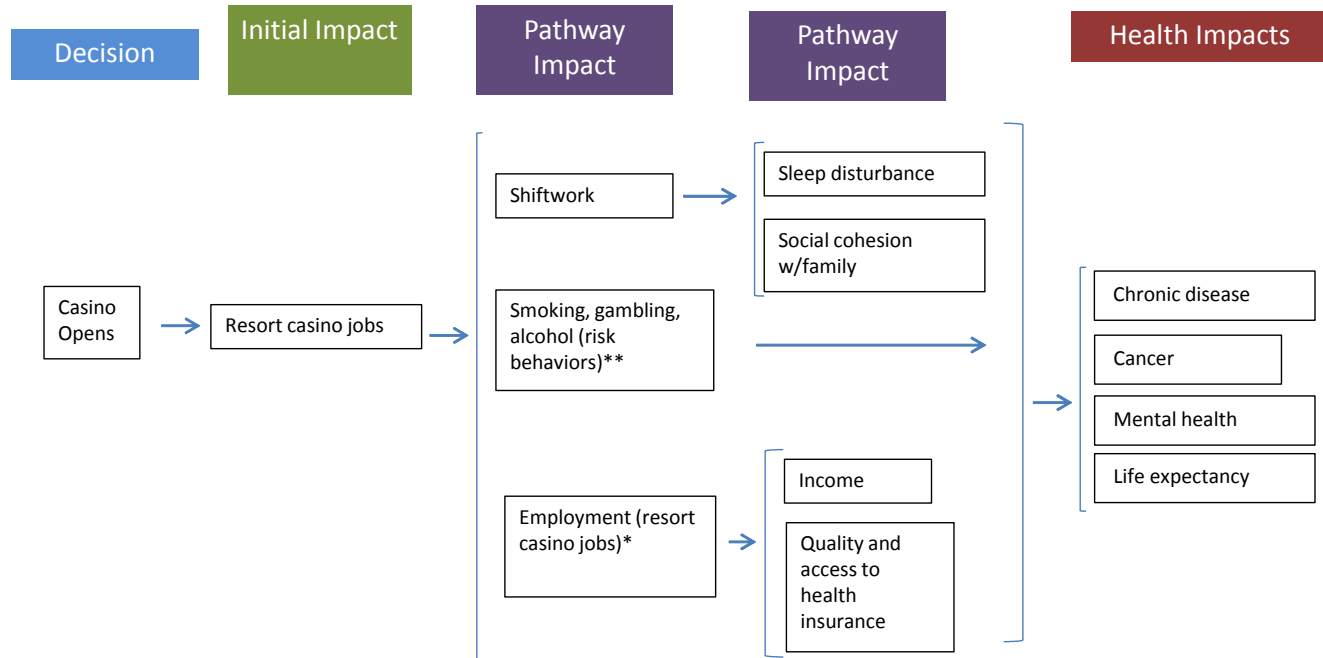
The following is a description of the findings of our assessment of the proposed casino's impact on health through the four pathways examined in the WMCHIA: jobs and employment, access to local casino gambling, traffic, and crime and public safety. As discussed in the Methods section, the scope of our assessment was limited to the potential host communities, and in some cases the county as a whole, due to limited time and resources to complete the HIA.

For each pathway area, the following are presented:

- the pathway diagram that guided our assessment and a brief summary that includes an overview of stakeholder feedback
- literature and evidence review findings
- existing conditions in each host community and in the county as a whole for data indicators related to the pathway
- predicted impacts
- key summary findings
- evidence summary table

Jobs and Employment

Figure 3: Jobs and Employment Pathway



* Assessment focus is on impact of employment on unemployed

** Relates specifically to casino employees

► Overview

The proposed resort casino is anticipated to bring a number of new jobs to the host community and Western Massachusetts as a whole. These new jobs have the potential to impact health through several mechanisms, including employment and job characteristics. In particular, the assessment focused on how new resort casino jobs will affect the unemployed, and the subsequent impacts employment would have on income, health insurance, and health status. It also examined how characteristics of resort casino employment will potentially affect health, specifically focusing on the impacts of shiftwork and casino employment on health risk behaviors. We recognize that the development and operation of the resort casino will have additional important impacts on employment in the host community and region through new casino construction jobs and potential indirect job creation. However, these other employment impacts are beyond the scope of this HIA to examine due to time and resource constraints.

When considering assessment findings, it is important to understand how the Expanded Gaming Act and the casino licensing process are promoting job creation and workforce development. In addition to prioritizing job creation, the Expanded Gaming Act calls for the development of a diverse workforce and employment opportunities for unemployed and underemployed. There are also efforts underway to prepare the Massachusetts

workforce for new resort casino jobs through a partnership between the MGC and the state's community colleges to establish the Massachusetts Casino Careers Training Institute. Finally, local hiring has been prioritized as the Springfield-MGM host community agreement includes a commitment to local hiring. Our analysis will consider findings in the context of these efforts when possible.

► *Summary of Stakeholder Feedback*

A common theme that we heard through our community engagement efforts was that a new resort casino in Springfield would provide needed job opportunities in the region. There was also a belief that the increase in employment could help to stimulate economic development. Conversely, others expressed apprehension that the casino could also harm other businesses if it took patronage from them. Some community stakeholders expressed apprehension about whether resort casino positions would provide a “livable wage.” Questions also arose about who would be offered the available positions and whether marginalized populations, such as low-income populations or people of color, would have the opportunity to receive or qualify for the jobs given existing barriers to employment for these groups. Issues were raised about the “fairness” of the hiring process and whether everyone would have equal opportunity, or whether nepotism or cronyism might provide an advantage to some people. Some stakeholders expressed concerns about whether a casino in Springfield would reflect the Connecticut experience, where it is perceived that a large number of people from outside of the region were hired for the casino positions. Others provided positive feedback about MGM's commitment to local hiring and a diverse workforce, as exemplified by the explicit goals to this end in the host agreement.

Interviews with key employment and workforce development stakeholders indicated that there was a need to address the existing workforce barriers that exist in our region to fully maximize the positive benefit of the new resort casino positions to the community (see Existing Conditions section for details of existing workforce barriers, p. 22). There was apprehension that many underemployed and unemployed individuals most in need may not be able to access the positions due to these barriers. There was excitement about the Massachusetts Casino Careers Training Institute efforts to prepare the workforce for the new positions, and optimism about the licensed casino operator working jointly with the Training Institute on these efforts. However, there was concern expressed that there was not sufficient current community capacity to assist under and unemployed individuals in obtaining skills needed to participate in the Massachusetts Casino Careers Institute Programs. Finally, there were concerns expressed that the new resort casino positions could negatively affect other industries due to the current limited workforce capacity for local entry-level positions. As a number of the resort casino positions would be entry-level, it is believed that the resort casino may draw these employees from other companies/organizations in the region.

Literature and Evidence Review

► *Casinos and employment*

Studies have generally reported that a new casino in a region increases the number of people reporting employment.⁷⁻⁹ However, effects on employment rates have varied likely due to changes in population levels that occur in some communities once a casino opens. In an analysis of casino counties in 26 states conducted by Baxandall and Sacardote to inform decisions about the legalization of casino gambling in Massachusetts, they found that the introduction of a casino was associated with a 1.1% increase in employment rates.⁷ When they only included more populous counties comparable to what would likely occur in Massachusetts, employment rates dropped by 1.7% due to population increases. However, in both cases, the number of people reporting employment increased by 6.7% and 5.7%, respectively. Thus, population increases lead to a decrease in employment rates in more populous casino counties despite increases in people reporting employment. It is important to note that the casinos examined in this analysis were Native American casinos, which may have different effects on employment due to differences in baseline conditions found on reservations, including high rates of poverty and unemployment. Impacts of a new casino have been found to vary, with some finding that the effects of a new casino were especially beneficial in economically depressed communities.¹⁰

Similarly, studies have found an inconsistent impact on unemployment rates. One study found that unemployment rates dropped by over 5% in gaming host communities and 2.5% in surrounding communities,¹¹ whereas another found no unemployment rate impact.¹² Again, population increases are a likely reason for differential impacts. Another possible reason for discrepancies in the studies is differences in the target populations examined. For example, some studies focused on the host community, whereas others focused on the region. If the majority of individuals filling the positions are from the region as a whole rather than the casino county or host community, then there may be a reduction in regional unemployment but not in casino county or host community unemployment levels.^{13,14} If this were to occur, this would have implications for a host community in that they would bear casino-related infrastructure costs- such as roads, sewers and police- but not experience the benefits of increased employment for its residents.

Annual employee turnover rates can be high for casino-related positions. The Spectrum Gaming Report to the Massachusetts legislation on the impacts of legalizing casino gambling states typical turnover rates of 25-30%.¹⁵ The report found that rates vary depending on a variety of factors, including type of casino job and proximity to other casinos, which effects subsequent ease of seeking employment elsewhere. The report projected that there would be an annual casino employee turnover rate of 25% in Massachusetts with rates as high as 40% in certain job categories, such as unskilled entry-level positions.

► *Income and Health*

Unemployed individuals who obtain the new resort casino jobs would have an increase in income. Income has been shown to be associated with health outcomes in a number of studies with greater income positively associated with better health. Studies have found that low-income people have poorer health outcomes and higher mortality rates.¹⁶⁻¹⁸ Though a number of factors likely contribute to this income-based inequity, one mechanism by which this may occur is through decreased access to resources that promote health, such as healthy food and opportunities for physical activity.¹⁷ Studies have shown that lower-income individuals are more likely to live in areas lacking grocery stores and general access to affordable healthy foods, sometimes referred to as “food deserts,” compared to higher-income people.¹⁹ Subsequently, they are likely to eat fewer fruits and

vegetables, have a less varied diet, and have more mineral and vitamin deficiencies.²⁰ In addition, low-income people often live in environments with limited opportunities for physical activity, which likely contributes to the finding that low-income individuals tend to be less active.^{21,22} A healthy lifestyle, which includes healthy eating and physical activity, has been shown to decrease risk for cancer²³ and chronic disease, including heart disease, high blood pressure, diabetes, and obesity-related diseases.^{19,24}

► *Health Insurance and Health*

Typically in the U.S., employment would also lead to improved health through increased access to health insurance as employers are the primary source of affordable quality health insurance. Studies have found that insurance coverage has been positively associated with more timely and regular care, as well as better health outcomes.²⁵⁻²⁸ However, this finding is not necessarily applicable in Massachusetts. An estimated 96% of Massachusetts residents have health insurance as a result of the 2006 Massachusetts' healthcare insurance reform act which requires health insurance.²⁹ Individuals can obtain insurance through employers, purchase private state plans, or receive coverage through public plans (MassHealth) if they are income-eligible. Recently unemployed individuals may receive insurance coverage through unemployment benefits or privately purchase insurance through COBRA plans. Income-eligible unemployed individuals may also obtain insurance coverage through public plans.

Discrepancies in insurance quality and costs exist for Massachusetts residents depending on the type of their insurance coverage. It has been reported that individuals who receive insurance through unemployment benefits or through public insurance may have difficulty accessing care because few physicians accept the insurance plans.^{30,31} Discrepancies in cost-sharing, or "out-of-pocket" costs such as co-pays and deductibles, also vary by type of insurance coverage. Employer plans and privately purchased plans typically require cost sharing, whereas public insurance in Massachusetts (MassHealth) does not.³¹ Among insurance plans purchased or provided by employers, lower premiums often mean higher co-pay and deductible amounts resulting in the most affordable monthly payments having higher costs when care is needed. In low-income families, this can mean that healthcare costs are still very high and care is inaccessible despite having insurance coverage. In addition, low-wage workers spend proportionately more of their income on "out-of-pocket" costs.³² Even moderate out-of-pocket expenses can substantially increase the burden on low-income families, particularly for individuals with children and/or chronic health issues.^{33,34} This cost burden has also been found to contribute to poorer general and mental health among low-wage workers,³² likely because they use fewer services, tend not to have a regular primary care provider, use less preventive care, and are less likely to use new, brand name drugs.³⁵ In Massachusetts, individuals with low-income have been found to have fewer cardiovascular and cancer screenings.³⁶

► *Casino Employees, Risk Behaviors, and Health*

Casino employees have been found to have a higher prevalence of behaviors that put their health at risk, including drinking problems, smoking, and pathological gambling.³⁷ When casinos offer services to address these problems, studies suggest that few casino employees participate.³⁷ It has been suggested that the increased prevalence in stress-related behaviors may be due to a number of conditions related to casino employment, including "shift work, demanding work roles, emotional labor, patron interactions, uncertainty and lack of control, legal responsibilities, ethical concerns, and super-charged environments..."³⁸ The work environment may

particularly impact prevalence of problem gambling as the close proximity to gambling activities, familiarity with gambling due to workplace exposure, and readily available wages (i.e. through payment in cash or advances on wages) may make it easier for casino employees to develop gambling problems.³⁹ In addition, some casino employees receive gratuities in the form of chips, also known as tokens, which could encourage employees to gamble. It is unclear the extent to which this practice encourages gambling as it has been reported that some casinos do not allow employees to gamble on their site.⁴⁰

Problem gambling, excessive alcohol use, and tobacco use all have known negative effects on health. Numerous studies have found that smoking increases risk for respiratory conditions,⁴¹ cardiovascular disease,⁴² diabetes,⁴³⁻⁴⁵ and a number of other health conditions.^{41,46,47} Smoking also increases risk for a variety of cancers including: oral, lung, laryngeal, esophageal, stomach, bladder, cervical, kidney, leukemia, and pancreatic.^{41,47-51} Excessive alcohol use has been associated with chronic disease,⁴⁶ cardiovascular disease,⁵² diabetes,⁵³ cancer,^{49,52,54-56} and numerous other health conditions.⁵² Pathological gambling also leads to a number of negative health effects for the individual and family, which are outlined in the Access to Local Casino Gambling section (p. 35) of this report. In addition to these physical health effects, substance abuse and gambling addictions are co-morbid, or co-occur, with a number of mental health conditions, including depression and anxiety.^{9,57-59}

► *Casino Employees, Shiftwork and Health*

Casinos are open 24-hours a day, and subsequently, employees may work late night hours or lengthy shifts.^{60,61} Shift-work, defined as any type of employment that is not a regular daytime schedule, has been shown to negatively impact daily sleep length, circadian rhythm patterns, work-life balance, and stress.^{62,63} In particular, night shift work is particularly disruptive to circadian rhythms and the subsequent physiologic processes affected by these cycles.^{64,65} Studies have found an association between shiftwork and negative physical health outcomes, including obesity, cardiovascular disease, diabetes and cancer.^{64,66-68} The International Agency for Research on Cancer concluded that “shiftwork that involves circadian rhythm disruption is probably carcinogenic to humans.”⁶⁴ Studies have also found that shiftwork has a negative effect on mental health, with one study finding risk of anxiety and depression 2-6 times higher among night shift workers and workers with varying shift schedules than those working standard schedules.⁶⁹

Nonstandard work patterns have also been found to negatively affect family life.³⁹ Separation or divorce was found to be 3-6 times higher in families where a spouse worked nights.⁷⁰ In addition, parents have reported poorer family functioning, less effective parenting, and depression when working nonstandard schedules.⁷¹ This negatively affects children and increases the likelihood that they will have social and emotional problems.^{71,72} In addition, deterioration of family cohesion has been associated with negative health effects. Family cohesion contributes to social connection and an individual's access to emotional and physical resources, which has been found to decrease stress and increase life span.⁷³ Those who report a lack of social support are over two times more likely to have poor or fair health⁷³ and higher mortality rates from heart disease and cancer.⁷⁴⁻⁷⁷

Existing Conditions

► Unemployment

In 2012, 7,200 Springfield residents were unemployed, representing 11% of the community's labor force and 37% of unemployed individuals in the county (see Table 6). The unemployment rate was 64% higher than the state rate and almost 30% higher than the county rate. Unemployment rates in Springfield, the county and the state have been dropping over the past several years after reaching their peak in 2009. Hampden County had 18,729 unemployed residents in 2012.

Table 6: Percent and Number Unemployed in the Workforce

Year	Springfield		Hampden County		Massachusetts	
	Percent	Count	Percent	Count	Percent	Count
2007	7.0%	4,560	5.5%	12,348	4.5%	153,000
2008	7.9%	5,179	6.4%	14,213	5.3%	180,200
2009	11.7%	7,789	9.7%	21,947	8.2%	283,543
2010	12.6%	8,641	10.2%	23,264	8.5%	297,100
2011	11.8%	7,943	9.2%	20,558	7.4%	254,191
2012	11.0%	7,200	8.5%	18,729	6.7%	233,684

Source: U.S. Bureau of Labor Statistics, 2012

The education level among unemployed individuals in the workforce in Hampden County is lower than the level for the state overall (Table 7). In Springfield, the majority of unemployed individuals in the workforce have an education level of a high school degree/GED or lower (Table 7). Using these census estimates and unemployment data from the Bureau of Labor Statistics, it is estimated that 4,392 Springfield residents have a high school diploma equivalent or less.

Table 7: Percent Unemployed by Educational Attainment

Educational Attainment	Springfield	Hampden County	Massachusetts
Less than High School graduate	22%	19%	13%
High School Graduate	39%	40%	33%
Some College or Associate's Degree	27%	26%	28%
Bachelor's Degree or Higher	11%	14%	26%

Source: US Census Bureau, American Community Survey: 2007-2011

In Springfield and Hampden County as a whole, there are large racial/ethnic disparities in unemployment rates (Table 8). In Hampden County, Black/African-American and Hispanic residents aged 16 and older are estimated to have unemployment rates that are at least double that of non-Hispanic whites. In addition, the unemployment rate for Hispanic/Latino residents in Hampden County is particularly high with a rate almost 50% higher than the statewide rate for Hispanics/Latinos.

Table 8: Percent Unemployed by Race/Ethnicity


Race/Ethnicity	Springfield	Hampden County	Massachusetts
Non-Hispanic White	8.0%	8.0%	7.0%
Black or African-American	16.0%	16.0%	14.0%
Hispanic or Latino	20.0%	19.0%	13.0%

Source: US Census Bureau, American Community Survey, 2007-2011

► Barriers to Employment

It is estimated that 65% of the new resort casino positions would require a high school diploma or GED based on educational attainment data for New Jersey resort casino employees.⁷⁸ A number of barriers exist for workers in the greater Springfield area related to both obtaining and retaining entry-level positions that do not require a college degree. For those that do not have a high school degree, there are challenges accessing the basic adult education and training services that would be needed by many to obtain a GED. Interviews with Hampden County Regional Employment Board staff indicated that in Hampden County, there are over 1,000 people estimated to be on waitlists for both Adult Basic Education and/or English as a Second Language courses.^{79 80} Those who have a high school diploma or GED face barriers to obtaining positions. The Federal Reserve Bank of Boston's survey of employers in the Greater Springfield area reported "good availability of entry level applicants, but a high prevalence of workforce readiness issues."⁸¹ Examples described include incomplete employment applications, lack of interview/personal presentation skills, and lack of previous work experience among young adults.^{81,82} Workforce readiness issues have also been described as a barrier to retaining employees, with a number of skills commonly found to be lacking in entry-level employees, including: dependability, reliability and proper workplace etiquette.^{81,83} In an effort to prepare local residents for resort casino positions and ensure a trained local workforce, the Massachusetts Gaming Commission entered into agreements with the state's community colleges to create the Massachusetts Casino Careers Training Institute. The Institute has an agreement with the Atlantic Cape Community College to exclusively use its training curriculum, which was highlighted as an example case study of a casino workforce development program in Spectrum Gaming's 2008 report commissioned by the Massachusetts legislature.¹⁵

The Federal Reserve Bank of Boston also identified limited public transit service as a significant barrier to obtaining entry-level positions among Springfield residents.⁸² The Pioneer Valley Transit Authority (PVTA) provides local transit service, which is predominantly utilized by individuals earning less than \$20,000 per year.⁸⁴ In a survey of transit users primarily from Hampden County, the majority of riders reported that they use public transit because they do not have a car or driver's license and rely on public transit for transportation.⁸⁵ Among the top barriers to transit use identified in a PVTA non-user survey were "no bus stop near my home," "does not go



where I need to,” and “takes too long.”⁸⁴ The Federal Reserve Bank similarly found that many Springfield residents in poor neighborhoods lacked access to cars and generally found the local public transit bus service to be insufficient for their needs.⁸² An interview with the PVTA Administrator found that large cuts to PVTA funding in the early 2000’s led to a 19% reduction in service.⁸⁶ It was also reported that mostly level funding over the past several years, combined with increased costs to provide service (e.g. maintenance), have resulted in the inability to restore service to prior levels. An increase in funding in 2012 was used to balance the budget and prevent fare increases. Current service is targeted to the primary needs of their ridership.⁸⁷ Currently, public transit service is offered primarily during the day and early evening on weekdays, with limited routes on the weekends.⁸⁸

An analysis of PVTA Springfield schedules available on their website indicates that Springfield is serviced by 16 routes on weekdays with service running from approximately 6:00 a.m. to 6:30-10:00 p.m. depending on the route. Over two-thirds of these routes have wait times between buses of 45 minutes or more. Weekend service is reduced. Twelve routes are available on Saturday with service starting between 6:00 - 8:00 a.m. and ending between 7:00 - 9:00 p.m. depending on the routes. Two-thirds of the stops have wait times between buses of an hour or more. Sunday service is even more limited with only seven routes that run from approximately 9:00 a.m. to 6:00 - 7:00 p.m. with wait times of over an hour for all seven routes. This limited service has been described as a barrier to employment for entry-level shiftwork positions.⁸² An increase in funding this fiscal year has allowed the PVTA to increase service for the first time in many years. They plan to expand their Sunday service with this funding.⁸⁶

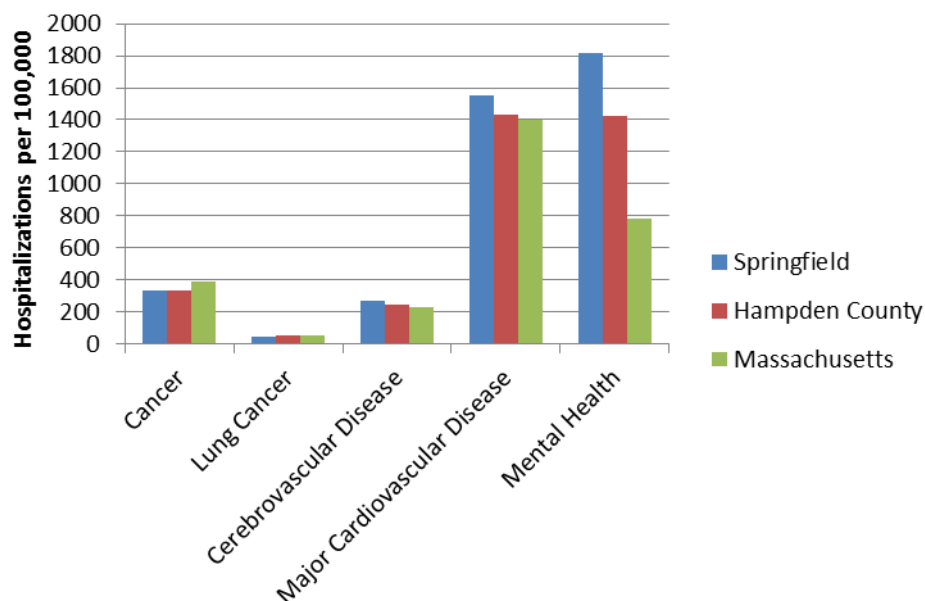
► *Uninsured*

As discussed previously, the vast majority of residents in MA are now insured due to the implementation of universal healthcare in 2006. U.S. Census Bureau pooled data from 2009-2011 indicates that an estimated 7% of Springfield residents were uninsured during this time period, as compared to 5% of Hampden County residents and 4% of MA residents overall.²⁹

► *Pathway Related Health Outcomes*

As described in the Health Status section of the Introduction (see p.6), Springfield residents are impacted more by some forms of chronic disease and mental health conditions than Massachusetts residents as a whole. BRFSS data indicates that Springfield has a higher prevalence of diabetes (11.6%) and current depression (15%) than that of the state overall (Table 4). Springfield also has higher age-adjusted hospitalization rates for cardiovascular disease, cerebrovascular disease, and mental disorders when compared to the state (Figure 4). In addition, there are racial/ethnic disparities in morbidity related to chronic disease and mental health in Springfield. As discussed in the Health Status Section, age-adjusted hospitalization rates of heart disease, cardiovascular disease, and cerebrovascular disease were generally 1.5 to 2 times higher among African-Americans and Hispanics as compared to non-Hispanic Whites (Table 5). In addition, the age-adjusted hospitalization rate for mental disorders was found to be 17% higher for African-Americans and almost two times higher for Hispanics when compared to non-Hispanic whites.

Figure 4: Hospitalization Rates for Health Outcomes in Employment Pathway



Source: MDPH, MassCHIP, Hospitalization Dataset, 2009

Predicted Impacts

► Increase in Employment Opportunities

The proposed casino operator, MGM, anticipates employing approximately 3,000 new employees at their resort casino, of which 2,200 are anticipated to be full-time.⁸⁹ This will be beneficial to the residents of the host communities and the county overall given the 7,200 unemployed individuals in Springfield and 18,729 in Hampden County as a whole. MGM has indicated in their host agreement with Springfield that they will attempt to hire locally. MGM explicitly states that it “will use its best efforts to strive to achieve labor participation goals for the utilization of [Springfield] City Residents so that (a) no fewer than 35% of persons employed by the Developer at the Project and any related Union Station facility will be City Residents; and (b) no more than 10% of its workforce will be residents from outside the City and its surrounding area.”⁸⁹ In addition, MGM stipulates that it will use best efforts to achieve a workforce in which no less than 50% is people of color, no less than 50% is women, and 2% is veterans.

As discussed previously, it is anticipated that 65% of the casino positions will have a baseline educational requirement of a high school diploma or GED.⁷⁸ As over half of unemployed individuals in Hampden County and the host community have only a high school diploma or less, this will provide needed employment opportunities to a large portion of the county’s unemployed workforce. However, as discussed previously, documented barriers exist in Hampden County and Springfield that prevent individuals from obtaining and retaining entry-level positions, including limited public transit service, challenges accessing basic education courses, and lack of workforce readiness skills.

Public transit is available for Springfield, but is generally only available during the day and early evening, which would not meet the needs of resort casino employees working shifts in the evening or overnight hours.⁸⁸ In

addition, limited service options can result in lengthy wait/trip time and limited access as described in the PVRTA Regional Transit Non-User Survey.⁸⁴

As described earlier, many employers have cited lack of workforce readiness skills among employees in entry-level positions as a barrier. The Massachusetts Casino Careers Institute will include basic education and workforce readiness components in its curriculum, in addition to training and certificate programs for casino positions in which specific skills are needed (e.g., dealers). However, for those positions in which a certificate is not needed for employment, there is no guidance as to which positions will require formal training prior to being hired or starting a resort casino position. Since a number of positions do not require unique skills and training (e.g., hotel staff), some resort casino position applicants may not receive the workforce readiness training that would enable them to obtain and retain a position. In addition, it is not clear what funding will be available to support individual's participation in the Massachusetts Casino Careers Training Institute. The MGC is currently working with the community colleges to identify potential funding sources. As noted above, there are also many unemployed individuals who would need additional adult basic education, English language courses, or a GED to be eligible for the training programs. Outreach is often needed to help connect people to these needed basic education courses, however, funding for this type of work is limited. In addition, there is a lack of available adult basic education and English language courses that would enable vulnerable residents to either complete a GED or fill a basic skills gap needed for employment.

In addition to these challenges, as described in the literature/evidence review, annual average turnover rates in casinos are typically 25-30%. Casino entry-level position turnover rates were found to be higher with rates as high as 40%, which may in part be reflective of high turnover rates among entry-level positions in general.⁹⁰ Therefore, there is potential for poor retention among entry-level positions that do not require specific skills due both to the workforce readiness issues described above, and possibly the nature of the positions. The importance of resort casino position career pathway opportunities to support employee development and advancement was discussed as an important mechanism to reduce employee turnover during our content expert interviews.⁷⁹ It is important to note that career pathway programs are one among a number of practices that potentially reduces employee turnover rate.

► *Casino Employment Opportunities Impact on Income*

A variety of positions are anticipated to be available at the resort casinos. Appendix F provides a list of anticipated positions that was developed by Spectrum Gaming in its report to the Massachusetts legislature.¹⁵ In addition, education levels and mean wages are provided based on 2011 U.S. Bureau of Labor Statistics data and Massachusetts Casino Careers Training Institute information. Of note is that wages are only for salary and do not include gratuities, which are a sizeable percent of total income for some casino positions. The positions are listed by category: casino, hotel, food & beverage, marketing, accounting, and administration. Examples of annual average wages include: casino cashiers \$26,500, slot service attendants \$34,200, slot supervisors \$38,300, and table supervisors \$49,700.

Many casino and hospitality employees in certain positions rely on tips as part of their income. In addition, some casino employees receive tokes, which are a form of tip in which chips are given as a gratuity and then pooled and distributed among certain employee positions using a standard protocol. To gain an understanding of total average wage including gratuities, we drew on income data made publicly available by Foxwoods casino as part of the assessment conducted for their Milford, Massachusetts casino application.⁹¹

Information for their assessment came from their payroll records. Table 9 summarizes their findings. The lowest average wage anticipated was \$29,000 for line level and administrative support not receiving gratuities. The report estimates that 28% of full-time employees will be line level and administrative support positions. These estimates may be an underestimate for the proposed resort casino in Western Massachusetts as the Mohegan Sun socioeconomic impact assessment predicted a larger percentage with average annual wage below \$30,000 when including resort casino positions not in the casino or the associated hotel (i.e., retail and water park). Those in hourly cash tip positions and hourly positions receiving tokens earn more than 50% of their income through gratuities.

Table 9: Foxwoods Crossroads Casino Report - Average Wage by Category

Category of Position	Average per capita wage	Annual Cash Tips and/or Casino Tokens	Total Average Per Capita Wage
Executive/Director	\$189,331	--	\$189,331
Management	\$67,418	--	\$67,418
Skilled Salary & Supervisory	\$53,583	--	\$53,583
Hourly, Casino Tokens	\$17,374	\$31,124	\$48,498
Hourly, Cash Tips	\$18,388	\$21,856	\$40,244
Line Level and Administrative	\$29,806	--	\$29,806

**Crossroads Resort-Casino Projected Labor & Labor Market Analyses - <http://casino.milford.ma.us/document-repository-area/foxwoods-ma-impact-reports/foxwoods-ma/economic/>*

Concerns were raised during WMCHIA community outreach activities and our assessment process about whether casino employee wages were sufficient to provide economic self-sufficiency, sometimes referred to as a livable wage. The Crittendon Women's Economic Independence Index Report provides estimates of the income required for a family to be economically self-sufficient in Massachusetts.⁹² All of the average wages are above the estimated income needed for one adult to be self-sufficient in Hampden County when comparing to data from the 2013 Crittendon Report (\$21,780). The Crittendon Report found that the amount needed for a single parent family with one child (i.e., one adult and one child) to be self-sufficient was \$40,296 if the child was pre-school age, and \$36,804 if the child was school age. The line level and administrative positions do not meet this threshold based on the average wages described above. Thus, it is estimated that at least 28% of positions would not provide an income that would allow self-sufficiency for a single parent family with one child in Hampden County, Massachusetts.

► *Casino Employment Opportunities Impact on Health Insurance*

Based on the Springfield-MGM host agreement, it is estimated that approximately 70% of the positions will be full-time and eligible for benefits.⁸⁹ It has been reported that casinos typically offer good health plan benefit packages to employees, often using this as a recruiting tool with some requiring little or no employee contributions towards these packages.¹⁵ Thus, it is predicted that employees who were previously unemployed and relied on public insurance or insurance benefits through unemployment would have better access to providers through resort casino employment. Casino employees who were previously on public insurance would likely see

an increase in cost-sharing (e.g. co-pays, deductibles) as MassHealth does not require any cost-sharing. However, with the implementation of the Affordable Care Act (ACA), the amount that employers can require employees to contribute to their premium is limited to 9.5% of their income.⁹³ Many other changes will occur at the federal and state level with the implementation of the ACA, including a number of income-based subsidies, so it is difficult to predict the impact on health insurance.

► *Resort Casino Employment and Shiftwork*

Estimates of the shift distribution of new resort casino gaming and non-gaming employees were provided by the Massachusetts Casino Careers Training Institute (Table 10).⁹⁴ These estimates were based on information provided by several potential resort casino operators throughout the state. It was reported that employee shift assignments are determined by a bidding process. Staffing levels vary based on day of week and holiday season, with Thursday to Sunday and holidays having higher levels. It is important to note that the distributions in Table 10 are average percentages and that there will be variation by day of the week and season as described above. As can be seen, the vast majority of gaming and non-gaming positions would work non-standard work hours, which would potentially place them at increased risk for chronic disease and cancer as described in the literature review section. Forty percent of gaming positions would work during evening and overnight hours, which is the shiftwork period that has the highest increased risk for negative health impacts.

It is not clear the extent to which these estimates would apply to the new casino in Western MA. MGM provided a sample shift headcount based on a summary of two of their properties in Las Vegas, which can be found in Table 11.⁴⁰ The sample shift has a substantially larger number of non-gaming positions working dayshift. In addition, it has fewer gaming employees working during the overnight shift. It is important to note that the shifts in the MGM sample have rolling start times and, thus, many employees would still work nonstandard work schedules. For example, a follow-up interview with an MGM representative described dayshift as a shift that starts anytime in the morning prior to noon, and swing shift as a shift that starts anytime in the afternoon.⁹⁵ Though the MGM representative stated that the sample was likely representative of the distribution of shiftwork among casinos in general, it is uncertain the degree to which the sample shifts would be representative of a casino in Western MA as it was also stated that shift schedules are determined based on projections of needs due to visitation estimates, etc. These projections may vary by geographic location.

Table 10: Estimated Percent of Employees by Shift for Gaming and Non-Gaming Positions

Gaming Employees		Non-Gaming Employees	
Hours	Percent	Hours	Percent
5:00 a.m. – 1:00 p.m.	20%	8:00 a.m. – 4:00 p.m.	20%
1:00 p.m. – 9:00 p.m.	40%	4:00 p.m. – 12:00 p.m.	60%
9:00 p.m. – 5:00 a.m.	40%	12:00 p.m. – 8:00 a.m.	20%

Data Source: Casino Careers Training Institute

Table 11: MGM Sample Shiftwork Distribution

Shifts	Gaming Employees (Percent)	Non-Gaming Employees (Percent)
Day Shift	37%	56%
Swing Shift	40%	30%
Overnight Shift	23%	14%

Data Source: MGM; sample based on two properties- New York, New York and Monte Carlo

► Casino Employment Impact on Health Risk Behaviors

Based on the findings in the scientific literature and evidence review that casino employees have higher prevalence of health risk behaviors, it is anticipated that casino employees will have a higher incidence of smoking, alcohol consumption, and problem gambling. In regards to problem gambling, MGM has reported that they do not allow employees to gamble at their site, which would reduce the ease with which employees may gamble at the casino.⁹⁵ This may reduce the likelihood of increased risk for problem gambling. The increased prevalence of smoking and alcohol consumption would place them at higher risk for poor health outcomes.

Summary of Key Findings

- New casino jobs would provide unemployed individuals with increased employment opportunities and associated income, which have been shown to improve health by reducing risk for chronic disease, cancer, and mental health illness.
- Springfield's 2012 unemployment rate of 11% was 64% higher than that of the state and 37% higher than the county rate. Large local racial/ethnic disparities exist in unemployment levels, which likely contribute to local health disparities.
- The more casinos hire locally (i.e. host community, surrounding communities, and county), the greater the positive benefits to the communities being impacted by the casino.
- Employer-based health insurance obtained through these jobs would likely be beneficial as it would provide increased access to providers. It is unclear how implementation of the ACA would affect the impact.
- A number of documented local and regional barriers exist that prevent individuals from obtaining and retaining entry-level positions. These include limited: 1) public transit service, 2) workforce readiness capacity, 3) community outreach to link unemployed individuals to needed basic adult education/training, and 4) access to needed basic adult education and English as a second language courses. These barriers could prevent those most in need of the new resort casino jobs from obtaining the new jobs, thus reducing the potential positive benefit of the increased employment opportunities.


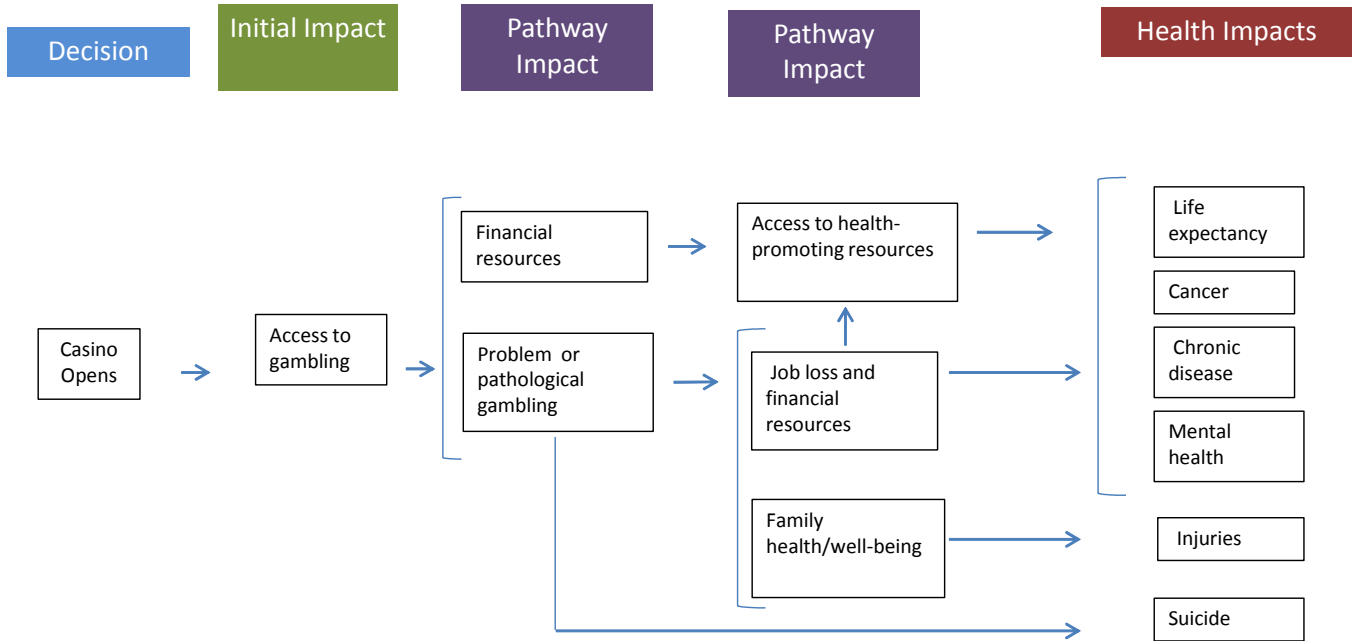
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- The Massachusetts Casino Careers Training Institute will provide programs to train individuals on specific skills needed for resort casino jobs and other workplace skills, including workforce readiness. However, there are concerns that those under and unemployed individuals most in need of these training programs may face many challenges obtaining the basic education needed to qualify for the training programs. There are opportunities to support the Massachusetts Casino Careers Training Institutes efforts to prepare the workforce for new resort casino positions.
 - Evidence suggests that turnover rates may be as high as 40% for entry-level unskilled casino positions. Well-defined career pathways that support employee development and advancement have been shown to reduce turnover rates.
 - Casino employees have been found to have a higher prevalence of health risk behaviors (smoking, alcohol, and problem gambling), which negatively impact health. It is unclear the extent to which MGM's stated policy that employees are not allowed to gamble onsite will affect the likelihood of increased risk of problem gambling.
 - A large proportion of resort casino employees will work non-standard work hours, or shiftwork, which has been associated with an increased risk for chronic disease, cancer, and mental health conditions through 1) increased sleep disturbance and circadian rhythm disruption, and 2) negative impacts on family cohesion. Best available evidence suggests that 23-40% of casino gaming positions will work night shift-work, which has the most risk for negative impacts due to circadian rhythm disruption.

Table 12: Summary Evidence Table - Jobs & Employment Pathway

What does the evidence say about how the decision will impact health through pathways?							
Health Determinant	Positive or negative health effect? (direction)	Likelihood of impact? (likelihood)	Number of people affected? (magnitude)	How strong is the health impact? (severity)	Who will be impacted? (distribution)	Strength of evidence supporting impact on health	Uncertainties and Contextual Comments
Employment	+	likely	moderate	moderate to high	resort casino employees (casino, hotel, retail and other) and families	very strong	positive impact dependent on if existing local barriers to employment are addressed
Income	+	likely	moderate	moderate to high	resort casino employees (casino, hotel, retail and other) and families	very strong	positive impact dependent on whether wage is self-sustaining
Quality of health insurance	+	possible to likely	moderate	moderate	resort casino employees (casino, hotel, retail and other) and families	strong	impacts uncertain with Affordable Care Act implementation
Employee risk behaviors	-	likely	low	moderate	casino employees	very strong	
Shiftwork	-	likely	low	moderate to high	casino and hotel employees working shifts	fair to strong	Night shift workers particularly impacted
Legend	Direction: positive (+), negative (-), mixed (+/-), unable to assess (?) Likelihood: likely, possible, unlikely, uncertain Magnitude: low (<500), moderate (500-10,000), high (>10,000) Severity: low (transient/minimal health symptoms), moderate (chronic/more severe transient health symptoms), high (severe chronic symptoms or death) Distribution: population most likely to be affected by the changes occurring due to a resort casino				Strength of Evidence: very strong (strong, quality evidence base), strong (strong evidence base with some conflicting evidence but overwhelmingly supporting pathway), fair (moderate strength/quality evidence base with conflicting evidence but majority supports pathway), weak (little evidence that is of moderate or weak quality), none (no evidence)		

Access to Local Casino Gambling

Figure 5: Access to Local Casino Gambling Pathway



► Overview

A resort casino in Western MA would provide access to a new form of local gambling. Though casinos will be new to Massachusetts, gambling is common among Massachusetts residents. Gambling is a large revenue generator in the Commonwealth with one of the highest per capita gross gaming revenues among non-casino states due to one of the top grossing lotteries in the U.S.⁶⁰ Though gambling is a common leisure-time activity, for some, this risk-taking behavior can become an uncontrollable problem. The American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) classifies pathological gambling as a mental health disorder and defines it as the “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits.”⁹⁶ The sub-clinical version of this disorder is generally referred to as problem gambling. Pathological and problem gambling together are referred to as disordered gambling, which is a term we will use throughout this report. The recently released update to the DSM-IV (DSM-V) renames “pathological gambling” as “gambling disorder” and reclassifies disordered gambling as an addictive disorder, which reflects the scientific evidence indicating similarities to substance abuse disorders.⁹⁷

The assessment focused on how this local access to casino gambling would likely impact the prevalence of problem and pathological gambling and the subsequent impacts on health of the individual and family. The assessment also examined how local access to a casino would potentially impact financial resources and the subsequent health of individuals that gamble at the casino. This was included because community members had

raised concerns about the potential for a disproportionately negative effect on low-income individuals (see Summary of Stakeholder Feedback below).

► *Summary of Stakeholder Feedback*

The impact of a local casino on problem gambling, as well as on other forms of addiction, was consistently expressed as a top concern by community stakeholders in all of our engagement efforts. Some Springfield community members were worried about how gambling would lead to the “break-down in families” and other negative impacts associated with pathological gambling, such as domestic violence. There were also concerns about how a casino in Springfield would impact social cohesion in the community overall. Survey and interview respondents raised issues about how a casino and increased access to gambling would impact vulnerable populations, particularly high-risk youth and people of color. Interviews with local mental health providers indicated that there was a lack of understanding of disordered gambling as a serious problem in the community overall. Interviews also indicated that very few people seek treatment for disordered gambling and that there is limited local capacity to treat disordered gambling. There was the belief that the focus on disordered gambling due to a casino could provide an opportunity to raise community awareness about disordered gambling.

In addition to problem gambling, there were also questions raised about potential disproportionate impacts on low-income individuals due to access to local casino gambling. Some stakeholders noted that gambling would be a form of “regressive tax” with low-income individuals contributing a disproportionately larger percentage of their financial resources to gambling.

Literature and Evidence Review

► *Problem and Pathological Gambling*

Studies estimate that 2.2% of adults in the U.S. have had problem or pathological gambling disorders in the past year⁹⁸ and 2.7% have experienced these disorders during their lifetime.⁹ Though the lifetime prevalence may seem low, disordered gambling rates are comparable to other substance abuse (e.g. cocaine use disorder) and mental health disorders (e.g. obsessive-compulsive disorder, anorexia).⁹⁹

A number of sociodemographic risk factors for disordered gambling have been identified, including male sex, younger age, minority racial/ethnic status, low socioeconomic status (SES)/income, and divorced/separated marital status.^{58,100} Among racial/ethnic populations, African-Americans have been found to have disproportionately higher rates of problem and pathological gambling^{9,57,101} with one study finding almost double the prevalence of Whites.¹⁰¹ Studies are less conclusive for Hispanics, with some studies finding similar rates¹⁰¹ and others finding higher rates.⁵⁷ Research suggests that immigrants may also be at increased risk for disordered gambling.^{57,102}

Studies have also found that individuals with other mental health disorders or a history of substance abuse are also at increased risk for problem and pathological gambling.^{10,57} Mental health and substance abuse disorders are often co-morbid, or co-occur, with gambling disorders. Thus, it is not clear whether these disorders precede gambling disorders or vice versa.

Elderly populations and youth/young adults are also potential vulnerable populations to the negative impacts of gambling.^{57,103-106} Primary concerns about the elderly have focused on the impact that gambling has on fixed incomes and past casino efforts to target advertising to seniors. Young adults and youth are considered vulnerable as studies have shown that the earlier one begins gambling, the greater the risk for problem and pathological gambling later in life.^{10,57,100} Also, younger pathological gamblers have more destructive habits, such as increased illegal activity, risky sexual behaviors, and suicide attempts.¹⁰⁷

New casinos increase local opportunities to gamble,¹⁰⁸⁻¹¹⁰ which has been shown to increase problem and pathological gambling in a number of studies.¹¹¹⁻¹¹⁴ Estimates of increases in problem and pathological gambling have varied from 30% to 75% likely due to differences in study design, monitoring timeframe, distance from casino, and existing opportunities to gamble prior to the casino opening.^{109,110,113} Research has found that the initial increase in disordered gamblers that occurs with the introduction of a new source of gambling is followed by a decrease over time.⁹⁸ These findings suggest that rates of disordered gambling would potentially be higher immediately after a new casino is built, but would likely decrease the longer a casino has been present. For example, Welte et al. found that prevalence increased by 29% one year after a casino opened, but returned to approximate baseline levels after 4 years.¹¹³

Studies have found that less than 10% of pathological gamblers seek treatment for their disorder. Those that do seek treatment tend to be middle-aged, employed, married, Caucasian and less educated.¹⁰⁰ Treatment options include psychosocial therapy (e.g., cognitive behavioral and motivational enhancement) and Gamblers Anonymous, which is a member-led support group similar to other 12-step programs such as Alcoholics Anonymous. As discussed above, problem and pathological gambling is complexly related to other mental health disorders and often co-occurs with mental health and other addictive disorders. It is often difficult to treat since it is frequently a coping mechanism for these other disorders.^{102,111,115}

► *Access to Gambling and Impact on Financial Resources*

Concern has been expressed about how access to new casino gambling would impact financial resources in the general population, and particularly among low-income residents. When examining the effects of gambling on resources, MacDonald et al. did not find a difference in the effect on savings, retirement, and net worth when comparing low-level gambling households to non-gambling households.¹¹⁶ In addition, they found that gambling did not affect financial resources for life essentials, such as spending on food and shelter, in the general population. Low-income populations have been found to be vulnerable to greater negative economic effects of gambling, as studies indicate they spend a disproportionately higher proportion of their financial resources on gambling than those with higher incomes, leading some to term gambling as a form of “regressive taxation.”^{8,111,117} It is important to note that studies examining this issue have focused on non-casino gambling and may not be generalizable to casino gambling since studies suggest that casino gambling is done primarily by those with more leisure time and higher incomes.^{106,118} In addition, other research has found that non-lottery gambling does not increase income inequality at a state level.¹¹⁹ However, since all other forms of gambling act in this “regressive” nature, it is suggested that casinos may disproportionately impact the poor in a similar manner to other types of gambling.^{8,117}

► *Impacts of Disordered Gambling on Health*

Studies have found that pathological gamblers and some problem gamblers experience social, economic and health effects due to their disorder.¹²⁰ Financial difficulties, impacts on family well-being, and suicide have all been found to be associated with pathological gambling.

Disordered Gambling - Financial Impacts- Health

Studies report that many problem and pathological gamblers have financial troubles due to gambling.^{106,111,121,122} Financial troubles may include bankruptcy, loss of employment, and poverty.¹⁰⁶ Spouses report financial issues in the forms of debt, property loss, loan default, and harassment by creditors.¹²² Up to 50% of pathological gamblers reported financial trouble in one study, with 26% reporting that they borrowed money or sold possessions in order to gamble, 5.6% reporting illegal activity, and 2.7% reporting filing for bankruptcy.¹¹¹

As discussed earlier in the employment pathway section, decreases in income, financial resources, or job loss have been shown to negatively impact health by increasing risk for chronic disease and mental health conditions. Potential mechanisms include decreased opportunities for healthy eating and physical activity due to fewer financial resources and financial challenges associated with insurance costs (see p.19).

Disordered Gambling – Impact on Family Well-Being/Cohesion- Health

Problem and pathological gambling have been found to have serious negative impacts on family relationships.^{106,115,122-126} A recent review found that spouses of pathological gamblers often reported a number of family problems, including "arguments, anger and violence; lies and deception; neglect of family; negatively affected relationships; poor communication; confusion of family roles and responsibilities..."¹²² Spousal abuse and neglect are common among problem gamblers, with a review by Kalischuk finding reports of verbal and/or physical abuse ranging from 43-87%.¹²² Approximately one-third of couples in which one member is a problem or pathological gambler end up separated or divorced.⁹

Family dysfunction has been shown to negatively impact physical and mental health. Spouses of pathological gamblers report a number of stress-related ailments (e.g., headaches, intestinal disorders, and high blood pressure)¹²² and greater use of health care services¹²⁷ as a result of chronic physical and mental health

problems.¹²⁸⁻¹³¹ Children of pathological gamblers have been found to be more likely to smoke, drink, and use drugs,¹²¹ all of which are associated with poor health outcomes. Additionally, stressful childhood experiences are known to increase the risk for heart problems later in life.¹³² Spouses of pathological gamblers and their children are also at higher risk of becoming disordered gamblers themselves.^{10,101}

Disordered Gambling - Suicide

Suicide has been described as one of the potential impacts of problem and pathological gambling.^{59,106} Suicide attempts are well documented in the literature and have been found to be as high as 20% in diagnosed pathological gamblers.¹²¹ Additionally, spouses of disordered gamblers are at increased risk of suicide with Lorenz and Yaffee finding that 14% of spouses of problem gamblers reported suicidal ideation.¹²² Crosby et al. found that the average annual prevalence of suicidal thoughts among adults in Massachusetts was only 4.2% in 2008-2009.¹³³

Existing Conditions

Findings from the 4th Biennial New England Gaming Behavior Survey conducted in 2012 indicate that 58% of Massachusetts residents reported legally gambling in the past year.¹³⁴ The types of gambling reported included the lottery, scratch tickets, casino gambling, Keno, poker, bingo, dog/horse racing, sports betting, and internet gambling. The most frequent type of gambling in Massachusetts is the lottery with 45% of survey respondents having played in the past year; 22% of respondents reported casino gambling in the past year. Unfortunately, gambling prevalence data is not currently available at the county or city/town level.

A 2007 University of Massachusetts, Dartmouth report estimated that the prevalence of disordered gambling in Massachusetts was approximately 2.6% (123,000 individuals), with 1.2% of survey respondents identified as probable problem gamblers and 1.4% as probable pathological gamblers.¹³⁵ The lifetime prevalence of at-risk gamblers was found to be 4.1%. A 2013 statewide web-based survey conducted by the Massachusetts Council of Compulsive Gambling found higher rates among individuals that reported gambling in the past twelve months, with 4.9% identified as problem gamblers and 5.0% as probable pathological gamblers. A commonly utilized screening tool, the South Oaks Gambling Screen (SOGS), was used to identify disordered gamblers.¹³⁶ As stated in the report, caution must be taken when interpreting these results as they may not be generalizable due to the possibility of response bias and other forms of bias that may have occurred.¹³⁶ Representative disordered gambling data is not available for regions or counties within the state.

As described previously, treatment for disordered gambling generally consists of psychosocial treatment/therapy, or Gamblers Anonymous, which is a 12-step program similar to those for other types of addiction (i.e., Alcoholics Anonymous and Narcotics Anonymous). Interviews with representatives from large local mental health facilities indicate that very few people in the region receive treatment for pathological gambling, which aligns with research finding that only 10% of disordered gamblers seek treatment for the disorder.^{100,137,138} In addition, they have found that there is a lack of public awareness in the community as to when gambling becomes a problem (i.e. disordered gambling) and of disordered gambling as a serious problem. The Massachusetts Council of Compulsive Gambling survey similarly found that 40% of respondents did not believe that compulsive gambling was a “somewhat serious” or “serious” problem.¹³⁶

Local capacity to address problem gambling is limited, as many clinicians are not currently trained on disordered gambling criteria and methods of treatment.^{137,138} Currently, there are three Gamblers Anonymous groups available in Hampden County (Springfield/Indian Orchard, Holyoke and Longmeadow), with the

Springfield/Indian Orchard site being the closest option for those in the potential host community. New groups can be formed when members see a need and take initiative to start a new group.¹³⁹⁻¹⁴¹

As identified in the literature review, there are several groups that are potentially vulnerable to disordered gambling, including low-income individuals, some racial/ethnic groups, and young people. Springfield and the county as a whole, have a large number of residents who would be at increased risk. As discussed in the sociodemographic profile, Springfield has a large number of low-income residents with an estimated 40,400 (27%) living below the poverty level.^{3,142} The majority of Springfield’s residents are people of color with an estimated 20% of the population non-Hispanic Black or African-American and 37% of the population Hispanic/Latino.³ In addition, a large number of young people reside in the region with 13 institutions of higher education in the greater Springfield area, including eight colleges, community colleges or universities in Hampden County (American International College, Bay Path College, College of Our Lady of the Elms, Holyoke Community College, Springfield College, Springfield Technical Community College, Western New England University, Westfield State University), and the University of Massachusetts, Amherst located approximately twenty miles from Springfield.

Predicted Impacts

► Problem and Pathological Gambling

Based on the literature, it is anticipated that a new casino in Western Massachusetts would initially increase the prevalence of disordered gambling upon opening. Using the statewide past-year disordered gambling prevalence rate of 2.6% found by Barrows & Borges¹³⁵ and U.S. Census data, we estimated the current number of disordered gambling in the county and the potential host community (Table 13). As study estimates of increased prevalence have varied widely, we use a conservative estimate of an initial increase of approximately 30% in disordered gamblers found by Jacques et al. to estimate the number of new problem and pathological gamblers due to a casino.¹⁰⁹ There would potentially be an increase of 3,634 disordered gamblers in Hampden County with the introduction of local casino gambling (Table 13). We anticipate prevalence would return to baseline levels after approximately five years.^{98,109} This increase in disordered gambling would negatively impact financial resources and family cohesion as described above and subsequently impact health. The large number of low-income individuals, people of color, and young people that reside in Hampden County would be vulnerable to increased risk.

Table 13: Estimated Impact of Casino on Number of Disordered Gamblers

Geography	Problem and Pathological Gamblers		
	Current	After Casino Opens - Initial (~1 year)	After Casino Opens - Over Time (~5 years)
Springfield	3,993	5,191	3,993
Hampden County	12,114	15,748	12,114

**Estimated using U.S. Census 2012 Population estimates, the MA prevalence of disordered gambling estimates (Barrows and Borges, 2007) and 30% increase (Jacques, 2006) upon opening of casino*

Summary of Key Findings

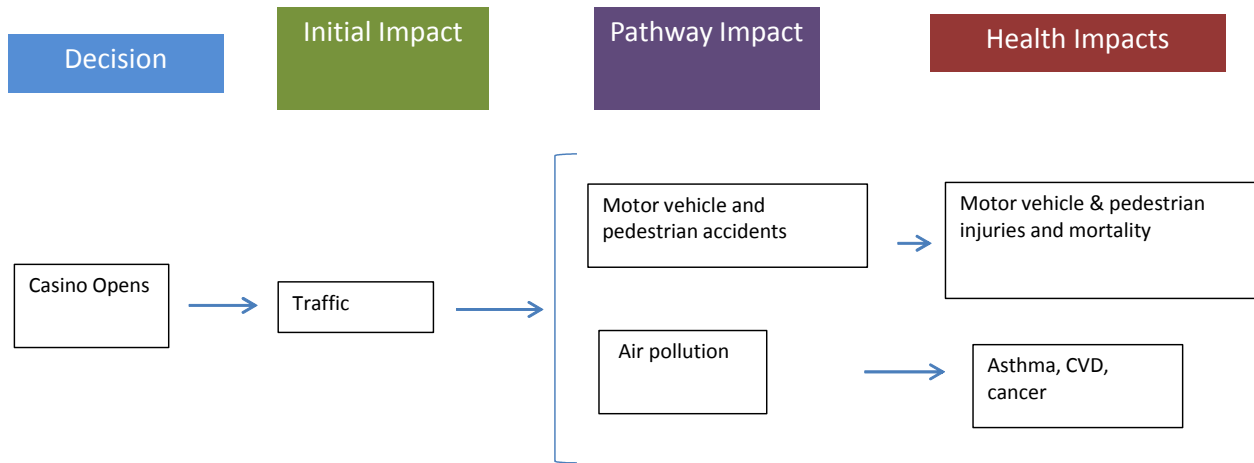
- Problem and pathological gambling, or disordered gambling, is an addictive disorder that negatively affects the health of the individual through decreased financial resources/job loss and comorbidity with other risky behaviors, addictive disorders, and mental health conditions. Family members also experience negative health impacts due to increased risk of spousal/child abuse and neglect, suicide, and gambling addiction.
- It is estimated that the current prevalence of disordered gambling is approximately 2.7%. Access to a new casino in Western Massachusetts would likely increase prevalence of problem and pathological gambling initially, with a subsequent decrease in prevalence over time (i.e. approximately 5 years).
- Populations experiencing some of the greatest health inequities in our county are also vulnerable to higher rates of problem and pathological gambling, particularly low-SES/income individuals and some racial/ethnic groups.
- The younger one starts to gamble, the greater the likelihood that one will become a problem gambler later in life.
- Very few people with gambling disorders seek treatment in the region.
- There may be a lack of understanding of problem and pathological gambling as a serious problem in the general population.
- There is limited local capacity to identify and treat gambling disorders in Western Massachusetts.

Table 14: Summary Evidence Table - Access to Local Casino Gambling Pathway

What does the evidence say about how the decision will impact health through pathways?							
Health Determinant	Positive or negative health effect? (direction)	Likelihood of impact? (likelihood)	Number of people affected? (magnitude)	How strong is the health impact? (severity)	Who will be impacted? (distribution)	Strength of evidence supporting impact on health	Uncertainties and Contextual Comments
Problem and pathological gambling	-	likely	moderate	<u>pathological gambling</u> : high <u>problem gambling</u> : low to moderate	disordered gambler and their families; low-income and some racial/ethnic groups have more vulnerability to this impact	very strong	families impacted through loss of family financial resources and increased risk of family abuse and neglect
Financial resources (as it relates to the general population)	-/?	uncertain	moderate	moderate	casino patrons	weak	strong evidence of disproportionate impact of casinos on low-income populations not available
Legend	Direction: positive (+), negative (-), mixed (+/-), unable to assess (?) Likelihood: likely, possible, unlikely, uncertain Magnitude: low (<500), moderate (500-10,000), high (>10,000) Severity: low (transient/minimal health symptoms), moderate (chronic/more severe transient health symptoms), high (severe chronic symptoms or death) Distribution: population most likely to be affected by the changes occurring due to a resort casino				Strength of Evidence: very strong (strong, quality evidence base), strong (strong evidence base with some conflicting evidence but overwhelmingly supporting pathway), fair (moderate strength/quality evidence base with conflicting evidence but majority supports pathway), weak (little evidence that is of moderate or weak quality), none (no evidence)		

Traffic

Figure 6: Traffic Pathway



► Overview

A resort casino has the potential to increase the amount of daily traffic in the region. The new anticipated resort casino trips will include those made by both visitors and employees. This increased traffic could affect health by impacting air pollution levels and frequency of motor vehicle collisions. The casino operators are required to create plans to minimize impacts, and to this end, have conducted traffic assessments and committed to initial mitigation plans through host agreements. This analysis will take into account their assessment estimates.

► Summary Stakeholder Feedback

Stakeholders consistently raised a new casino's impact on traffic as a top concern. Many stakeholders in the region have voiced concerns about the impact traffic would have on congestion in potential host and surrounding communities. In addition, many stakeholders expressed concern about additional air pollution caused by casino-related traffic, citing Hampden County and Springfield's poor air quality ratings. A number of people believe that the increase in traffic would increase air pollution levels, and subsequently, have negative effects on the large number of children and adults with asthma in Springfield. In addition, there were concerns that an increase in air pollution would increase the already large racial/ethnic asthma prevalence and morbidity disparities that exist in Springfield.

As discussed in the employment section, there was a belief that the current public transit capacity would not meet the needs of resort casino employees. Concerns were raised that current public transit options would not be sufficient for employees working shifts due to limited service in evenings, nights, and weekends. It was also believed that current public transit service was insufficient for the needs of casino patrons and that the vast majority of patrons would drive to the resort casino. There was optimism that the trolley bus system that MGM committed to supporting in the host agreement would help promote connectivity in Springfield between the bus and train station, the casino, and major attractions in the city. In addition, it was suggested that the casino-related increase in transit needs might provide an opportunity to increase transit capacity if efforts could be integrated and aligned appropriately.

Literature and Evidence Review

► *Traffic and Air Pollution*

Motor vehicles are a significant source of air pollution in the U.S. The Environmental Protection Agency (EPA) reports that motor vehicles are responsible for nearly “one half of smog-forming volatile organic compounds (VOCs), more than half of the nitrogen oxide (NOx) emissions, about half of the toxic air pollutant emissions ... and almost 75% of carbon monoxide emissions” in the United States.¹⁴³ In addition, NOx and VOC emissions react chemically to form ground-level ozone, which is a harmful pollutant and the main component of “smog.”¹⁴⁴ This is different than the “good” ozone found in the atmosphere, which protects against sun-related illnesses such as skin cancer. Motor vehicles also emit particulate matter (PM), which has been shown to have a number of harmful health effects. In urban environments, vehicles can be a significant contributor of PM, with one study finding that vehicle usage accounted for up to as much as one-third of ambient PM_{2.5} levels.¹⁴⁵ NOx, ozone, and PM have all been shown to have negative respiratory and cardiovascular health effects.¹⁴⁴

Vehicular air pollution has the potential to impact both regional and roadside air pollutant levels. The emitted air pollution may move downwind, depending on atmospheric conditions, and potentially increase regional levels.¹⁴⁶ In addition, recently emitted pollution from mobile sources has been shown to have strong impacts on pollutant levels near highways and major roadways. These effects have been found to decrease with increasing distance^{147,148} and to return to background levels between 150-300 meters from the roadway.^{147,148} Thus, though regional levels of air pollution may be below EPA thresholds for health impacts, near roadway exposure to air pollution is likely to be higher and have greater potential for negative health effects. This is of particular concern in urban environments where there may be higher volumes of motor vehicle traffic, greater density of homes near roadways, and the potential for cumulative roadway effects due to the proximity of neighboring roads.^{149,150}

The impact of increased traffic on congestion is also important to consider as studies have found that pollutant emissions are higher under congested conditions. Congestion occurs when a roadway nears or exceeds capacity, which can result in traffic delays, frequent stop-and-go traffic flow, and idling.¹⁴⁵ Impacts of increased traffic on congestion are dependent on whether the increase causes capacity to be exceeded and if mitigation measures are put in place to reduce congestion. Congestion can increase emissions and exposure to emissions through 1) decreased vehicle speed, which can lead to increased travel time, exposure, and concentration of emitted pollutants within a given area; and 2) frequent changes in speed or starting and stopping which leads to increased emissions.¹⁵¹ The increase in emissions due to congestion can be significant, with a study by Frey et al. finding that emissions were 50% higher under congested travel conditions compared to uncongested conditions.¹⁵² This increased risk due to congestion can more profoundly affect urban and local traffic environments. One study found that congestion-related rush hour emissions and the subsequent health impacts were greater for arterial roadways than highways.¹⁵¹

► *Air Pollution and Health*

Elevated levels of PM, NOx, and ozone have been shown to irritate the airways and have adverse respiratory effects.¹⁴⁴ PM has also been found to negatively affect cardiovascular health. Though all people can experience these impacts, people with pre-existing respiratory or cardiovascular disease, children, and older adults have been found to be particularly vulnerable to the negative respiratory health impacts of these pollutants.^{144,153} Children are particularly vulnerable to air pollution because of 1) the negative effects of air pollution on

developing lungs, and 2) their greater exposure due to higher ventilation rates, more frequent physical activity, and greater amount of time spent outdoors.¹⁵⁴

A number of studies have shown that traffic-related air pollution can lead to asthma exacerbations (flare-ups) and increased healthcare utilization, such as asthma-related emergency room visits.¹⁵⁵⁻¹⁵⁷ Some studies have suggested that air pollution may increase risk for the onset of asthma among individuals previously not having the disease.^{155,158} Near roadway exposure to dense traffic corridors has been found to increase risk for asthma morbidity.^{148,159,160} In a review of the literature, Boothe et al. found that almost all of the nineteen studies examined reported that proximity to high levels of near roadway traffic increased risk for negative respiratory effects.¹⁴⁸ Increased proximity to high traffic volume was found to increase wheezing, and exposure to dense traffic within 75-300 meters increased asthma prevalence. The threshold level for high traffic volume varied in studies, and ranged from approximately 10,000-100,000 vehicles per day (vpd).¹⁴⁸

Exposure to air pollution can also increase risk for cardiovascular-related mortality and events (e.g. heart attacks, heart failure, strokes).¹⁶¹⁻¹⁶⁴ The American Heart Association's 2010 expert panel evidence review report found that there was strong evidence of an association between elevated short-term and long-term exposure to PM_{2.5} and traffic/combustion-related air pollution and the following: cardiovascular deaths, cardiovascular hospitalizations, and ischemic heart disease.¹⁶² The expert review panel found that short-term exposure of as little as a few hours can increase risk for cardiovascular morbidity and that *"Long term exposure to elevated concentrations of PM_{2.5} in the present day environment reduces life expectancy in a population by several months to a few years."* Studies also suggest that exposure to elevated levels of PM can lead to the onset of cardiovascular disease among individuals that previously did not have the disease.¹⁶⁴ Studies also suggest that near-roadway exposure may be an important factor when considering vehicle-related exposure to air pollution and risk for cardiovascular disease, though more research is needed.¹⁶⁵

Though not as extensively studied as the effects of air pollution on respiratory and cardiovascular outcomes, a number of studies have shown that increased exposure to air pollution increases the risk for lung cancer.^{165,166} Literature reviews conducted by Brugge et al. and Vineis et al. found that the studies provided evidence of a positive association between air pollution and lung cancer.^{165,166} Study findings also suggested that near roadway exposure may increase incidence of lung cancer, as one study found that an increase in road traffic of 4,000 vehicle-km per day within 100 meters of study participant homes increased the risk for lung cancer by 9%.¹⁶⁷

► Traffic and Injury and Mortality

The Center for Disease Control and Prevention (CDC) reports that unintentional injury due to motor vehicles is one of the leading causes of death for people age 5-34.¹⁶⁸ Collision-related injury and mortality rates vary in rural and urban settings. The Insurance Institute for Highway Safety reports that fatalities due to collisions are more frequent in rural settings, whereas, those that cause non-fatal injuries occur more often in urban settings.¹⁶⁹ In addition, the Institute reported that pedestrian deaths and injuries caused by collisions occur more frequently in urban settings.

A number of factors contribute to risk for motor vehicle collisions and subsequent vehicle-related injury and mortality, one of which is traffic volume.¹⁷⁰ Greater volume or amount of driving has been shown to increase the risk for collisions.^{146,170,171} One study found that greater daily vehicle miles traveled (VMT) increased the risk for highway rear-end collisions.¹⁷² In the report "Understanding the Relationship between Public Health and the Built Environment," Ewing states that the most important factor in motor vehicle collisions is the amount of

driving. “Any measure which reduces VMT or traffic volumes, whether the measure is transportation or land use related, should reduce the number of fatal and non-fatal traffic accidents.”¹⁷⁰ Vehicle miles traveled is a measure used to describe the amount of travel in a given region (e.g., average daily VMT in Hampden County). It takes into account the number of motor vehicles traveling in a given area over a specified timeframe (volume or counts) and distance traveled. It is important to note that traffic volume is only one of a number of factors that affects risk for motor vehicle crashes. Other factors include vehicle speed, environmental factors (e.g., driving conditions and street conditions), and driver characteristics (e.g., age). Though increasing volume has been found as a risk factor, other risk factors may mediate the risk.

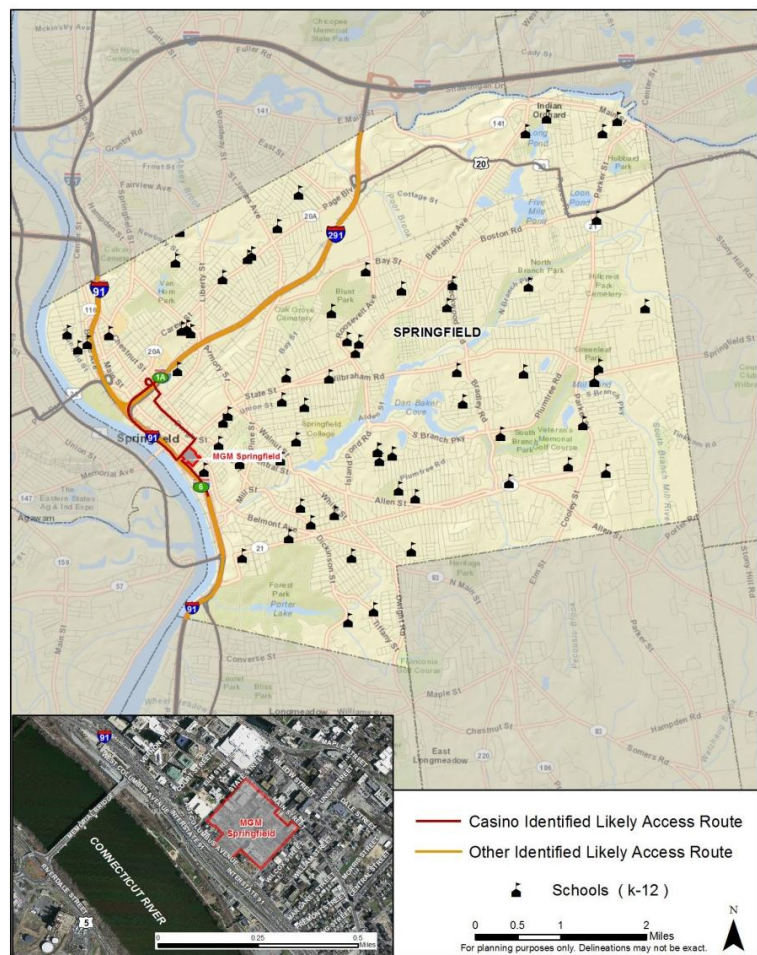
Traffic volume has also been found to increase risk for motor vehicle-related pedestrian injuries, particularly in urban environments.¹⁷³⁻¹⁷⁷ Stevenson et al. found that 41% of pedestrian traffic injuries could be attributed to high traffic volume of more than 10,000 vehicles per week.¹⁷⁵ Traffic volume also contributes to income-related inequities that exist in the number of motor vehicles, collisions, and related injuries that occur. In a recent study, Morency et al. found a 6-fold higher rate of pedestrian injury and a 4-fold higher rate of motor vehicle occupant injury when comparing lower-income and higher-income census tracts, due in part, to higher traffic volume.¹⁷⁷

Existing Conditions

► Casino Access Routes

In Springfield, the primary freeways that lead into the city are I-91, which provides access from regions to the north and south, and I-291, which connects to the Massachusetts Turnpike (I-90) east of the City. A number of local streets would then be used to access the resort casino site, which is planned to have a primary entrance on East Columbus Avenue and secondary entrances on Union and State Streets. Figure 7 highlights, in red, the likely local routes that will be used to access the proposed MGM casino as identified by the casino operator's traffic assessment report. In addition, likely highway access routes are highlighted in orange.

Figure 7: Springfield Resort Casino Primary Access Routes



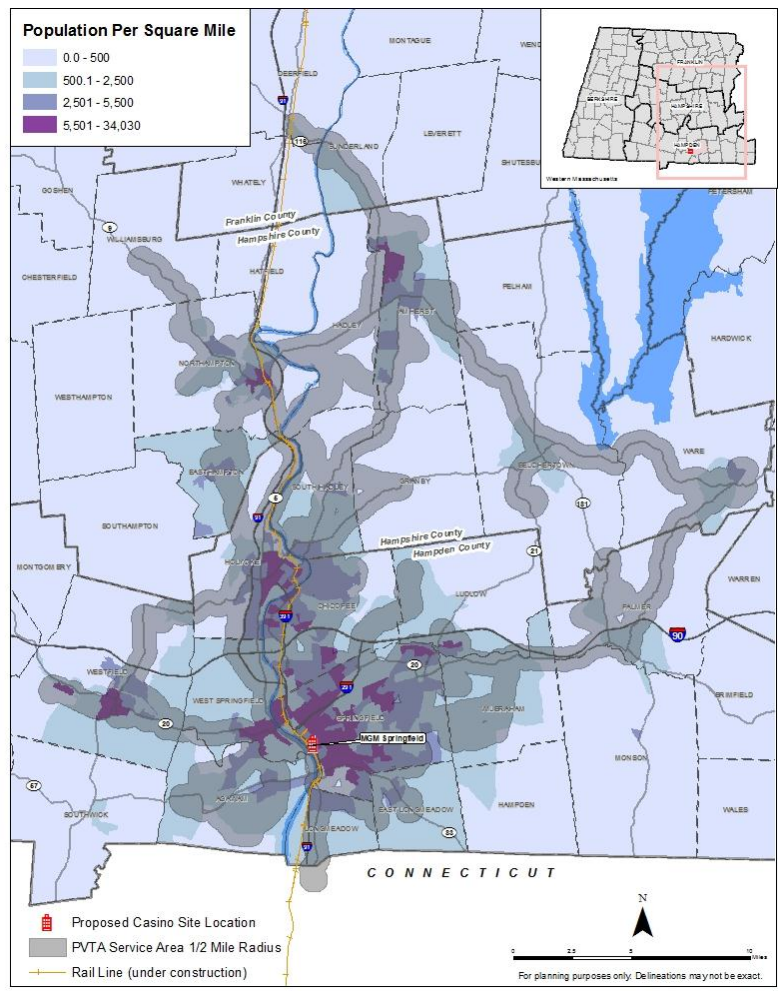
► Traffic

Vehicle counts (i.e. number of cars) provide an estimate of traffic volume on a roadway on a given day. The highest traffic volume in the region occurs along the I-91 corridor in the Springfield area. Traffic volume along this corridor varies by location. The Pioneer Valley Planning Commission (PVPC) reported that average daily 2012 vehicle counts at the northern Springfield City Line (Chicopee Border) were approximately 110,000, which were the highest in the region. The average daily 2012 vehicle count at the southern City Limit (Longmeadow) was approximately 70,000.¹⁷⁸ The most recent available traffic count data for local Springfield roads is from the traffic assessment report commissioned by MGM. The report stated that traffic volume on the primary casino access routes in November 2012 ranged from approximately 10,000 to 13,500 vehicles on Fridays and 5,000 to 10,000 vehicles on Saturdays (see Appendix G for counts by route).¹⁷⁹ Though vehicle counts were not available for other days, these counts provide an estimate for weekday and weekend volume, although it is recognized that there is likely variation in traffic volume over the course of the week.

Hampden County has less congestion compared to other urban areas in the state. According to the Texas Traffic Institute's Urban Mobility Report, 21% of VMT (vehicle miles traveled) in the Springfield urbanized area during peak travel periods in 2011 was in congested conditions, as compared to 56% for the Boston urbanized area.¹⁸⁰ This was almost half the proportion of VMT traveled in congested conditions during peak travel hours in the Hartford urbanized area (41%), which is a city of comparable size. It is important to note that the Springfield urbanized area extends beyond Hampden County and into the Hartford region, but the estimate does provide an understanding of general relative congestion in the region.

A larger percentage of Hampden County residents drive to work as compared to the state overall, likely due, in part, to infrequent and limited transit route options.¹⁸¹ An estimated 88% of people drive to work in Springfield, as compared to 80% for the state.³

Figure 8: Regional Public Transit Access

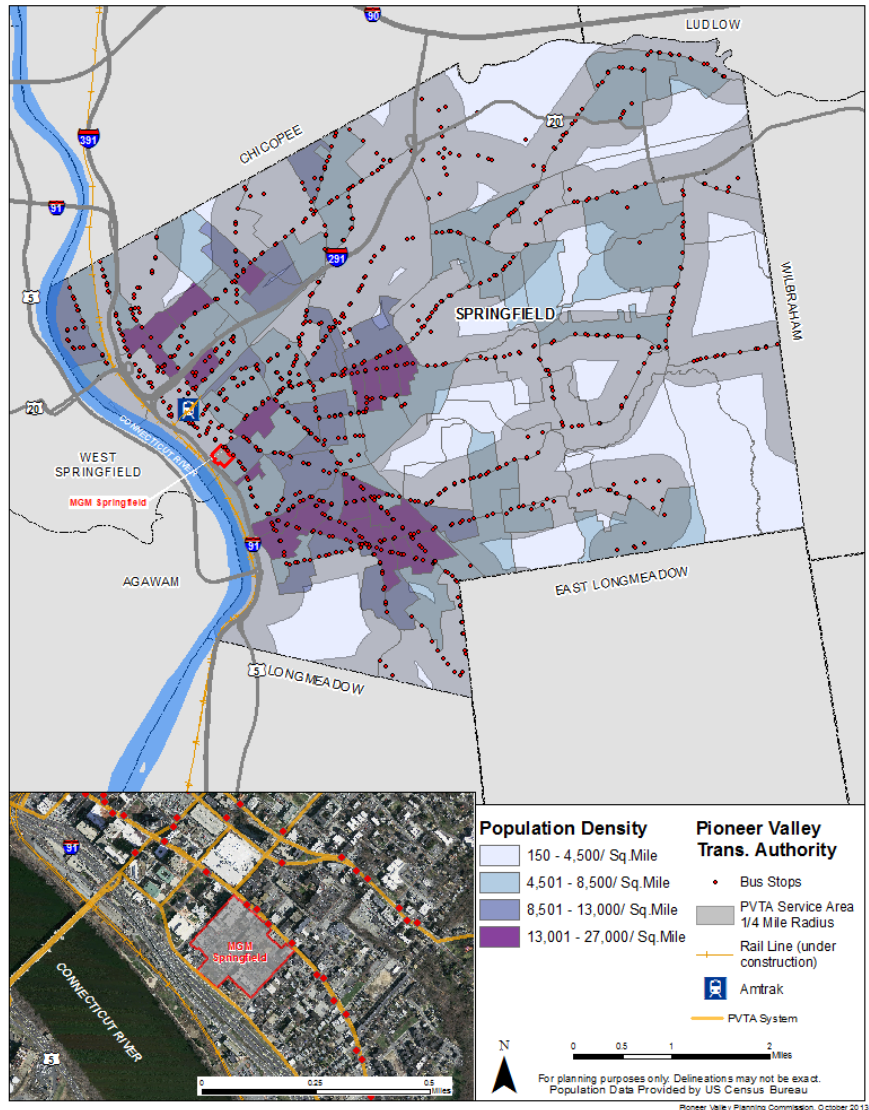


Average commute times in the County are lower than that of the state overall. U.S. Census data indicates an estimated average commute time of 22.5 minutes for Hampden County residents, as compared to 27.5 minutes for residents in the state overall.³ On average, commute time for Springfield residents is 21.3 minutes.

As discussed previously, the region's transit provider, PVRTA, provides bus route service throughout Hampden County and to other communities in the Pioneer Valley. Figure 8 illustrates access to PVRTA buses in the region and population density along PVRTA routes. The highlighted areas indicate regions within walking distance (0.5 mile) to PVRTA bus routes. Though service is primarily accessed at the bus stops, individuals can board a PVRTA bus anywhere along the route as long as it is deemed safe by the driver. The figure also illustrates the anticipated rerouting of the Vermonter Amtrak train route, which is expected to be completed by late 2014 or early 2015.

This information is shown in more detail for Springfield (Figure 9), in addition to bus stop locations throughout the community and near the proposed casino site. As Springfield is an urban center, it has extensive bus service with a number of stops throughout the city. Bus service runs to Union Station, the region's largest train and bus station, where riders can access Peter Pan Bus Lines and Amtrak rail service. As described in the employment section, the majority of riders are individuals that earn less than \$20,000 per year and rely on PVRTA service for transportation.^{84,85} Though Springfield has the most extensive access to PVRTA service in the region, barriers have been described, including insufficient coverage and long travel times.⁸⁴ As discussed previously, the Federal Reserve Bank reported that individuals residing in low-income Springfield neighborhoods have described service as insufficient to their needs.⁸²

Figure 9: Springfield Public Transit Access



In addition to current public transit options, the Springfield-MGM host agreement stipulates that MGM will provide funding to PVRTA to run trolley bus service throughout downtown Springfield. The trolley bus is planned to provide service to Union Station, the proposed casino, and several other tourist and highly trafficked locations in the City.⁸⁹

The host agreement also states that MGM will implement the traffic mitigation measures described in the MGM commissioned traffic assessment; however, it is not clear if this includes the assessment's recommended strategies to reduce traffic (i.e. transportation demand strategies). Recommended strategies in the assessment include providing: free or discounted employee transit passes, employee bicycles available for travel to and from the site, programs to encourage ride shares or car pools, and a guaranteed employee ride home program in case of emergency (i.e. for employees participating in ride shares, walking, biking, or taking public transit to work).¹⁷⁹

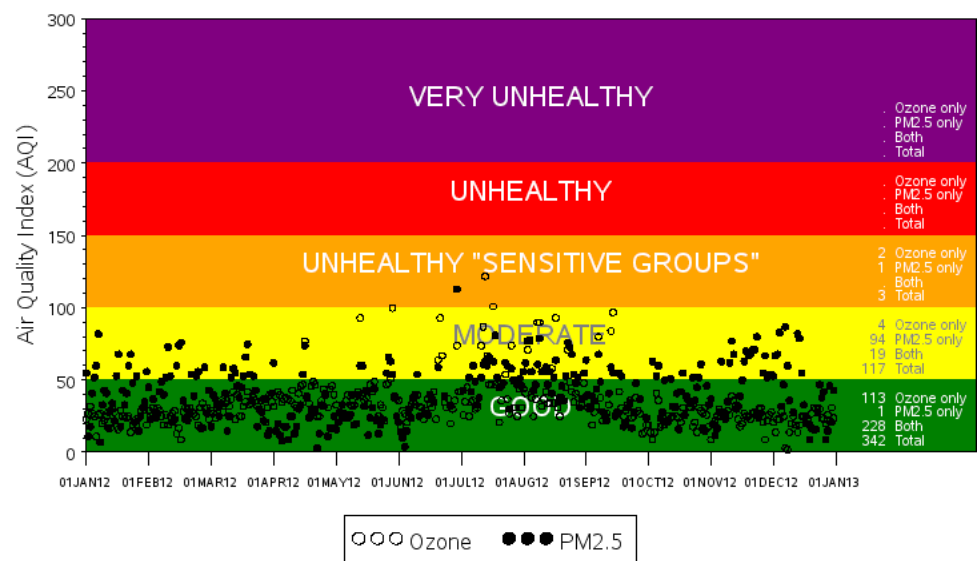
► Air Pollution

Pollutant Levels

The EPA National Ambient Air Quality Standards (NAAQS) provide threshold values for six common air pollutants that are known to harm human health and cause damage to the environment: ozone, carbon monoxide, lead, nitrogen dioxide, particulate matter (PM), and sulfur dioxide (see Appendix H for NAAQS). The primary standards provide protection for health. Secondary standards have higher thresholds and provide protection for public welfare (e.g., visibility and environment). The EPA Air Quality Index (AQI) is a measure of how air quality data compares to the primary threshold values and whether a pollutant level is harmful to

health. The AQI standardizes the values across pollutants since threshold values and unit of measurement vary by pollutant type. A value of 100 is the threshold for unhealthy air quality, with this level indicating that the air quality for the given pollutant is “unhealthy for sensitive groups”.

Figure 10: Daily 2012 Ozone and PM2.5 AQI Values, Hampden County, MA



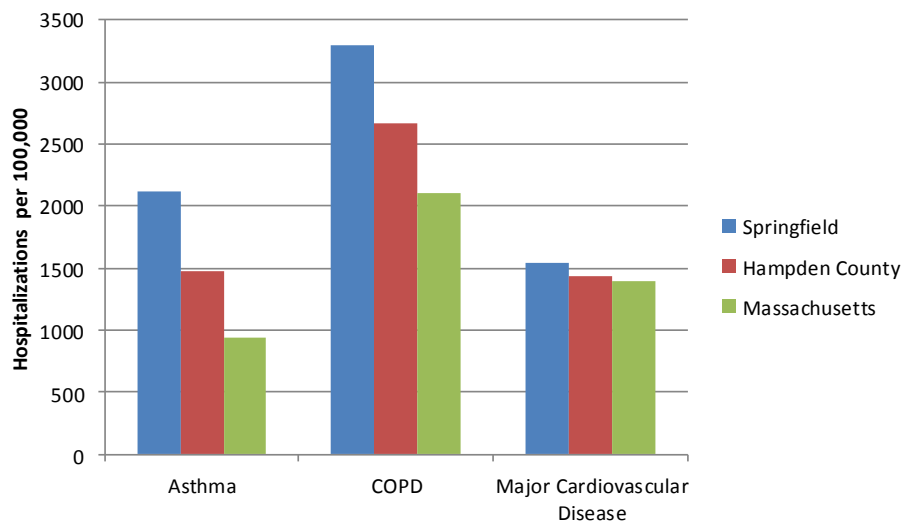
Source: U.S. EPA AirData <<http://www.epa.gov/airdata>>
Generated: September 17, 2013

U.S. EPA air quality data is available for Hampden County. In 2012, the majority of days (68%) were considered good air quality days based on the EPA's AQI.¹⁸² There were three days in which pollutant levels exceeded the air quality standards and were identified as "unhealthy for sensitive groups". Two of these days were due to exceedances of ozone and one due to an exceedance of PM_{2.5}. Figure 10 shows the distribution of 2012 PM and ozone AQI values as they were the only pollutants with exceedances in Hampden County. As can be seen in Figure 10, there were also 96 days with moderate AQI values for ozone and PM_{2.5} with a number nearing the threshold.

Health Conditions Related to Pollution

As described in the Health Status section of the Introduction, Hampden County, and Springfield in particular, have high asthma rates. Children in Springfield have an asthma prevalence of approximately 20%, which is almost double the state rate.^{183,184} In addition, as illustrated in Figure 11, there are high rates of asthma morbidity with age-adjusted hospitalization rates in Springfield over double that of the state. Age-adjusted cardiovascular disease hospitalization rates are 10% higher in Springfield compared to the state.

Figure 11: Air Pollution-Related Age-Adjusted Hospitalizations, 2009



Source: MDPH, MassCHIP, Hospitalization Dataset, 2009

Springfield and Hampden County as a whole also experience large racial/ethnic disparities for asthma morbidity with Hispanic age-adjusted asthma hospitalization rates over 3.5 times that of non-Hispanic whites, which is almost double the disparity that exists for the state overall (see Table 5, p.7) In addition, African-Americans have asthma hospitalization rates 1.5 times that of non-Hispanic whites. Hispanic and African-Americans also experience cardiovascular (e.g., coronary heart disease and heart attack) and cerebrovascular (e.g., stroke) disease hospitalization rates over 1.5 times that of non-Hispanic whites.



Figure 12: Locations of Collisions in Springfield, 2011



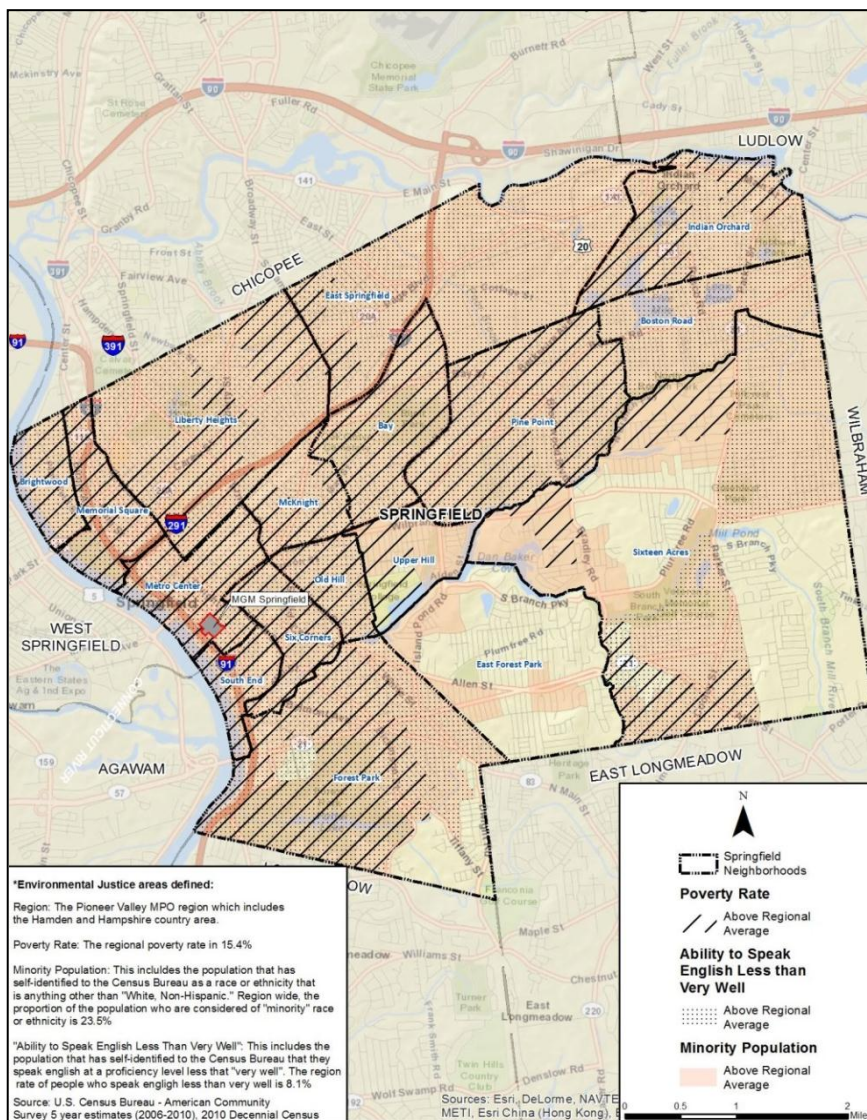
Predicted Impacts

► Impacts on Environmental Justice Communities

When considering environmental impacts, it is important to take into account the potential effects on Environmental Justice (EJ) communities. EJ communities are those identified as having vulnerable populations that often experience disproportionate exposure to environmental hazards. The state of Massachusetts' Executive Office of Energy and Environmental Affairs established an EJ policy that aims to reduce potential added environmental burdens on EJ communities in Massachusetts, specifically focusing on neighborhoods that have a large percentage of low-income, minority racial/ethnic populations, immigrant, or non-English speaking populations.¹⁸⁷ Our assessment utilized our regional Pioneer Valley Metropolitan Planning Organization's definition of EJ communities, which are those neighborhoods that have rates of poverty or racial/ethnic minorities above the regional average. In addition to poverty and minority racial/ethnic group status, we have added in criteria for areas with above-average number of residents

who self-identify as speaking English "less than very well" to reflect the state's inclusion of criteria for immigrant populations. Figure 13 illustrates the EJ regions in Springfield. As can be seen, Springfield has large regions of the city that meet all three EJ criteria, including the downtown area in which the casino would be located. Thus, it is important to take particular care when considering how pollution will impact these areas in Springfield.

Figure 13: Environmental Justice Areas in Springfield



Pioneer Valley Planning Commission, 2013

► Air Pollution

Regional

Using information included in the MGM traffic analysis report, it is estimated that there will be approximately 15,000 – 30,000 new vehicle trips per day (tpd) to the resort casino (Appendix J).¹⁷⁹ Vehicle trips include trips both to and from the casino and should not be interpreted as number of new vehicles going to the casino. Based on the anticipated number of new trips per day, a range of potential regional daily emissions was estimated for low (15,000 tpd), medium (22,500 tpd), and high (30,000 tpd) values of new trips. EPA Mobile 6.2 emissions factors and estimated vehicle trip parameters (see Appendix J for estimation method) were used to predict the new regional emissions. Mobile 6.2 is an EPA model used to estimate air pollution emissions from cars, trucks, and motorcycles.¹⁸⁸ Vehicle trip parameters used to predict emissions included average casino-trip VMT, vehicle mix, and average speed. These parameters were estimated using existing data sources and reports. Pioneer Valley Planning Commission provided technical assistance when selecting parameters and calculations. Average additional emissions were calculated for five common pollutants – VOCs, CO, CO₂, PM_{2.5}, and PM₁₀.

Table 15 provides the estimates for increases in emissions. To provide context for the estimated increases, these values were compared to the Massachusetts Department of Environmental Protection's Emissions Inventory values for 2005 Hampden County on-road mobile emissions of VOC, CO, NO_x, PM_{2.5}, and PM₁₀ (Table 16). This was the most recent year available. Information on CO₂ emissions was not included in the emissions inventory. As can be seen, the estimated emissions increases are approximately 1-3% of emissions experienced in Hampden County in 2005. It is not clear the extent to which the increases would cause ozone and PM_{2.5} levels in the moderate category near the threshold of “unhealthy for sensitive groups” (Figure 10) to cross the threshold. However, as a number of days had ozone and PM_{2.5} levels near the threshold for this category, it is possible that these increases could lead to more days with pollutant levels that are “unhealthy for sensitive groups.” Of note is that the estimated increases in emissions are regional and include a larger geographic area than Hampden County.

Table 15: Daily Estimated Regional Increases in Emissions Due to New Casino Trips*

Pollutant	Daily Increase in Emissions (kg/day)		
	Low	Medium	High
VOC	69	103	137
CO (summer)	1,270	1,905	2,540
CO (winter)	2,978	4,466	5,955
NO _x	172	258	344
CO ₂	162,047	243,071	324,095
PM _{2.5}	5	7	9
PM ₁₀	9	13	18

* Low=15,000 new tpd; Moderate=22,500 new tpd; High=30,000 new tpd

Table 16: On-Road Mobile Emissions in Hampden County (kg/day)

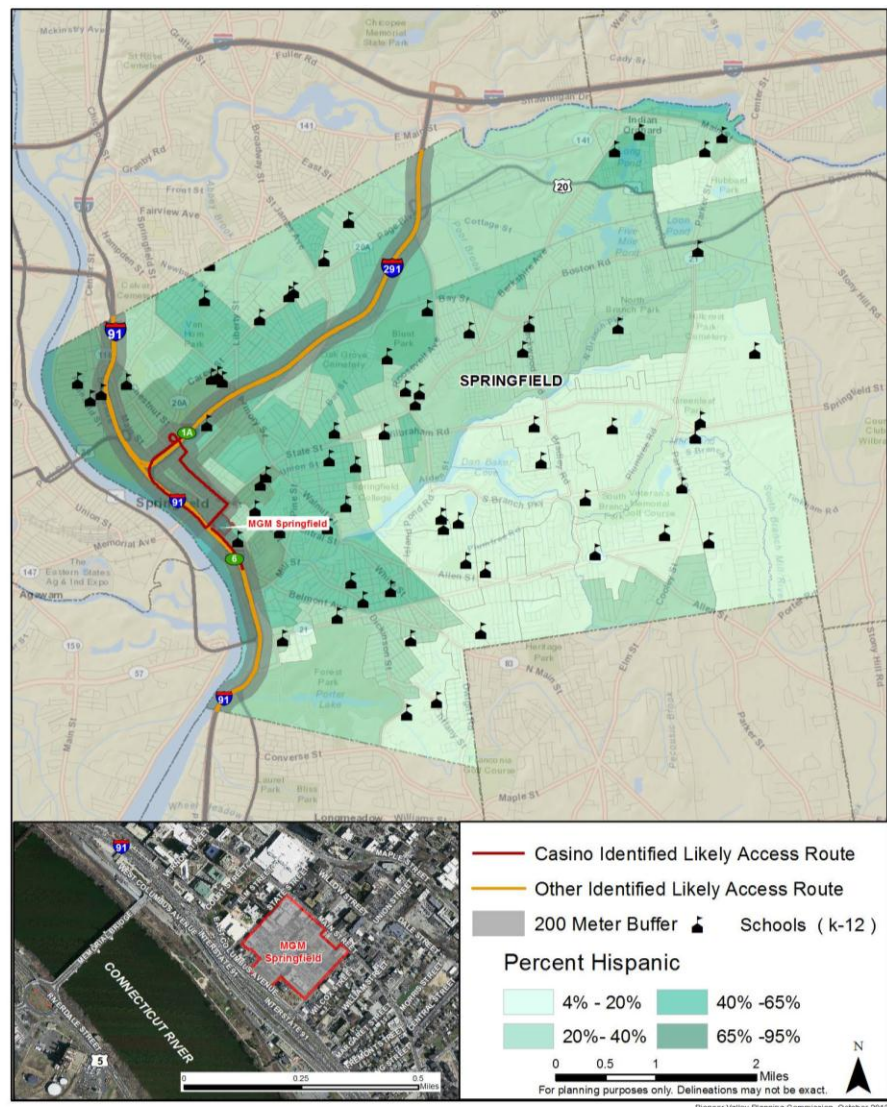
Pollutant	Average Summer Day	Average Winter Day	Average Day
VOC	6,812	6,213	6,515
CO	104,822	179,069	141,946
NO_x	23,228	21,460	22,342
PM_{2.5}	435	363	396
PM₁₀	626	517	571


* Source: MA DEP Emissions Inventory, 2005, <http://www.mass.gov/eea/docs/dep/air/priorities/app05mob.pdf>

Near Roadway Exposure

As discussed above, some studies have found that near roadway exposure to traffic volume as low as 10,000 vehicles per day (vpd) may increase risk for asthma morbidity and other health conditions. However, threshold values have varied with some suggesting that thresholds of 20,000 vpd should be used to examine increased risk in urban environments.¹⁸⁹ Baseline vehicle counts for the likely local Springfield casino access roads are estimated to be approximately 10,000-15,000 vpd on weekdays and 5,000-10,000 vpd on weekends. Increased casino traffic of 15,000 to 30,000 vehicle trips per day would likely lead to traffic levels above 10,000 vpd on most days and in some cases values above 20,000 vpd. In addition, there would be an increase in highway traffic

Figure 14: Hispanic/Latino Populations Residing Within 200 meters of Likely Casino Routes





that would be used to access these local roadways. To examine the impact of exposure to these increased levels of traffic volume and associated levels of potentially harmful near roadway air pollution, we used Geographic Information System (GIS) mapping and U.S. Census data (2007-2011) ³ to assess which vulnerable populations reside within a 200 meter buffer zone of the likely routes to the casino. Likely routes included the local access routes identified in the casino operator's traffic assessment (red routes) and other likely highway routes that would be taken to reach the local access routes (orange routes). Vulnerable populations were those identified as being disproportionately impacted by air pollution and related health impacts, including children less than 14 years of age and older adults over age 65. In addition, Hispanic/Latino and African-American Springfield residents were included because of the high rates of asthma hospitalizations and asthma-related health inequities within these populations.

The analysis found that an estimated 6,076 Springfield residents live within 200 meters of all of the identified likely casino access routes. These residents would be exposed to the increased levels of casino-related traffic that would have the potential to negatively impact health. Hispanic/Latino residents would be particularly vulnerable to the effects of increased traffic on near roadway air pollution as many of the residential areas within 200 meters of the likely casino local access routes have a large proportion of Hispanic/Latino residents (Figure 14). This increased exposure has the potential to increase the large existing asthma-related health inequities experienced by Hispanic/Latinos in Springfield. As children are also at increased risk of negative health effects of air pollution, the map also shows the schools found along the local access routes. Students at South End Middle School would be exposed to these elevated levels of near roadway pollution as the school is located within 200 meters of the likely local casino access routes. An examination of the vulnerable populations that would be impacted by increased traffic on the highways due to the casino found that the 200 meter buffer zones included some census block groups in which large percentages of children and African-American populations reside. See Appendices K - M for figures illustrating these maps. There are also several schools that are located within 200 meters of the highways that would be used to access the resort casino. An estimated 3,986 Hispanic/Latino residents, 841 African-American residents, 1,562 children under age 14, and 800 adults over age 65 live within 200 meters of the likely highway and local routes that would be used to access the proposed casino in Springfield.

► *Collisions*

As discussed in the literature and evidence review previously, traffic volume has been shown to be a risk factor for increased collisions and subsequent injury and fatalities. Based on those findings, we predict that increases in casino-related traffic volume may increase highway and local roadway collisions due to increased opportunity for collisions. In addition, we predict that motor vehicle related pedestrian injury may increase, particularly in Springfield, as increased traffic volume in urban areas has been found to be associated with increased risk of pedestrian injury. The predicted potential traffic counts of 10,000 per day or greater that may occur, as described in the air pollution section, have been found in some studies to be associated with greater risk of pedestrian injury.¹⁹⁰ However, it should be noted this does not take into account potential mitigation measures that are currently being proposed by casino operators.

Summary of Key Findings

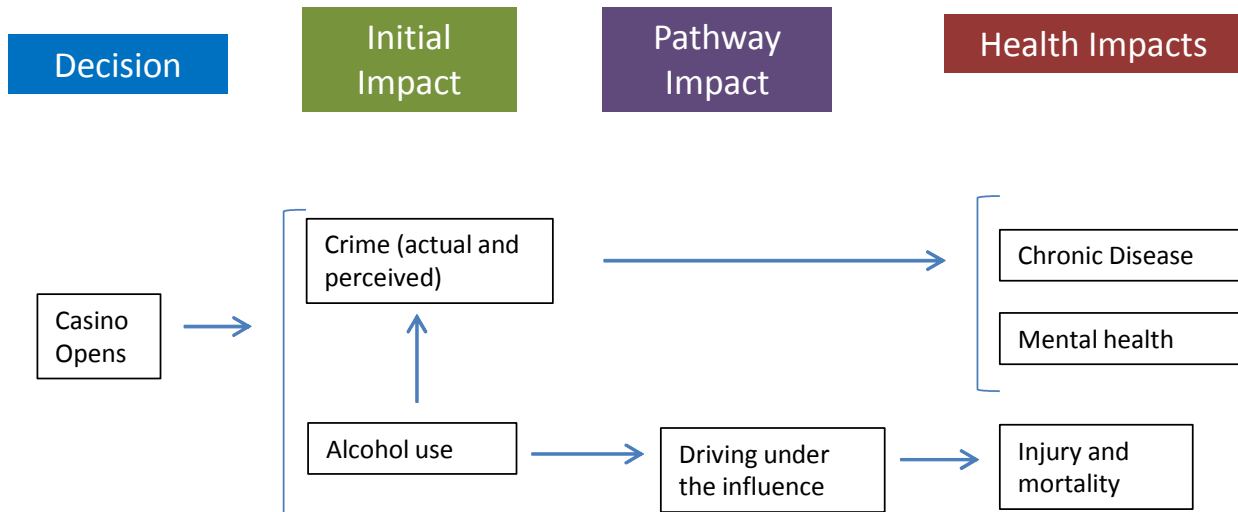
- High levels of traffic-related air pollution, particularly PM2.5, ozone, SO2, and NO2, increase risk for asthma, CVD, and cancer morbidity, and mortality. Short and long-term exposure has been shown to have negative health outcomes.
- Large portions of Springfield, including the downtown area in which the casino will be located, are Environmental Justice communities. Thus, care must be taken when considering potential environmental impacts of casino-related traffic on these areas.
- Increases in traffic volume due to a casino will slightly increase levels of air pollution in the region. It is not clear the extent to which these emissions may lead to ozone and PM2.5 related increases in “unhealthy air quality days for sensitive individuals” as a number of days were found to be near the AQI threshold for this categorization.
- Increases in traffic are likely to impact exposure to near roadway pollution. Populations particularly vulnerable to effects of near roadway pollution are children, elderly, and those with pre-existing respiratory or cardiovascular disease.
- As an urban area, near roadway exposure to air pollution in Springfield has the potential to impact a large number of residents. Near roadway pollution levels in Springfield could exceed thresholds for negative health impacts with the addition of the new casino traffic. Additional vulnerable populations in Springfield include Hispanics and African-Americans as they experience disproportionately high hospitalization rates for asthma, cardiovascular disease, and cerebrovascular disease.
- Increases in traffic due to a casino may increase risk for motor-vehicle related injuries and fatalities as high traffic volume has been shown to be a risk factor for increased injury due to vehicle-vehicle and vehicle-pedestrian injury. In particular, predicted increases in traffic volume in Springfield reach levels associated with increased risk for pedestrian injury in urban settings found in some studies.
- PVTa transit bus service is available in the Hampden County region. As an urban area, Springfield has greater access to transit than other communities in the region, though residents have cited barriers to usage. In addition, as described in the employment section of the report, service is likely to be insufficient to meet the needs of employees working shift-work during overnight hours or weekends.

Table 17: Summary of Evidence Table - Traffic Pathway

What does the evidence say about how the decision will impact health through pathways?							
Health Determinant	Positive or negative health effect? (direction)	Likelihood of impact? (likelihood)	Number of people affected? (magnitude)	How strong is the health impact? (severity)	Who will be impacted? (distribution)	Strength of evidence supporting impact on health	Uncertainties and Contextual Comments
Air pollution	-	<u>Regional</u> – possible <u>Near roadway</u> -likely	<u>Regional</u> -high <u>Near roadway</u> -moderate to high	moderate to high	region and community	very strong	
Motor vehicle and pedestrian collisions	-	likely	low to moderate	moderate to high	motor vehicle drivers and passengers, pedestrians, bicyclists	strong	Impacts dependent on measures put in place to improve pedestrian and bicyclist safety
Legend	Direction: positive (+), negative (-), mixed (+/-), unable to assess (?) Likelihood: likely, possible, unlikely, uncertain Magnitude: low (<500), moderate (500-10,000), high (>10,000) Severity: low (transient/minimal health symptoms), moderate (chronic/more severe transient health symptoms), high (severe chronic symptoms or death) Distribution: population most likely to be affected by the changes occurring due to a resort casino				Strength of Evidence: very strong (strong, quality evidence base), strong (strong evidence base with some conflicting evidence but overwhelmingly supporting pathway), fair (moderate strength/quality evidence base with conflicting evidence but majority supports pathway), weak (little evidence that is of moderate or weak quality), none (no evidence)		

Crime and Public Safety

Figure 15: Crime and Public Safety Pathway



► Overview

A resort casino has the potential to impact crime and public safety in its host community. Crime has the potential to directly impact physical and mental health through injuries, mortalities or trauma caused by acts of crime. Crime may also indirectly impact health through perception of crime in the community. A casino may also affect public safety as complimentary alcohol may lead to an increase in the number of people driving under the influence and a subsequent increase in associated collisions and health impacts. Measures have been put in place in anticipation of potential increases in crime and public safety issues. The Massachusetts Expanded Gaming Act calls for the establishment of a gaming enforcement unit within the state police to investigate criminal activity related to gambling. The Act also calls for casino operators to designate a space within their gaming establishment for gaming enforcement unit officers. In addition, the MGM-Springfield host agreement includes casino funding for direct impacts, which the City has reported will be used for additional police and other needed city infrastructure.

When examining the impact of a resort casino on crime and perception of crime, the assessment focused on overall crime rates. Examination of impacts on crime that are viewed as specifically related to casino gambling, such as prostitution and loan sharking, are beyond the scope of this HIA due to time and resource constraints.

► *Summary of Stakeholder Feedback*

A resort casino's impact on both crime and public safety were raised as two of the top three concerns in our Springfield stakeholder engagement efforts. As stated above, there were questions about how a casino would impact overall crime rates, in addition to forms of crime viewed as related to gambling. Some were interested in further understanding how the casino operator's "investment in lowering the crime rate" would affect crime in the city. A theme that came out in our stakeholder engagement efforts was how a casino would impact current public safety capacity. It was anticipated that there would be an increased demand on the police and public safety services. In addition, it was understood that the host agreements included funding to mitigate the increased burden on public safety. However, some stakeholders expressed concern that the City of Springfield would not effectively utilize the funding to address potential negative effects. Conversely, some stakeholders felt that the casino presented an opportunity to increase needed public safety infrastructure, such as increase in police, through the funding provided by the host agreements.


Stakeholders also expressed positive beliefs that the proposed resort casino could help to revitalize the City and reduce distress in some areas. As discussed in the assessment section, distress contributes to increased perception of crime. Stakeholders referenced MGM's agreement with the City to fund improvements to the River Walk and their development plans for the downtown area. MGM's design concepts were also discussed positively as they included elements that would prevent crime and increase pedestrian activity.

Literature and Evidence Review

► *Casinos and Crime*

A number of studies have been conducted examining the impact of a new casino on crime. Despite the relatively high quality of literature available, findings are contradictory or inconclusive. Multiple studies found that a casino may increase the rate of property crime (i.e., crimes associated with theft, embezzlement, fraud) while having little or no impact on violent crime,^{115,191-194} whereas other studies found an increase in violent crimes as well.¹⁹⁵ Conversely, several studies and reports conclude that the introduction of a new casino does not affect the rate of crime in a community^{9,196-204} and in some cases may actually decrease crime rates.²⁰² In a study examining casino and non-casino communities, Stitt et al. found that some types of crime increase while others decrease, but that findings varied across communities.²⁰² The authors conclude that crime does not inevitably increase with the introduction of a casino into a community, but that the effects of casinos on crime appear to be related to a variety of contextual factors. Some of the differences may be due to differences in initial conditions, including whether there are already high levels of crime and social problems prior to the introduction of a casino.¹⁹⁸ For example, larger communities and higher unemployment rates have been found to be associated with a higher crime rate, while Gross Domestic Product (GDP) growth and increases in manufacturing employment are associated with decreases in crime rates.¹⁹⁸ In addition, Stitt et al. found that when a casino is built with the support of the community, crime is less likely to rise.²⁰² Finally, some differences in study findings are believed to be due to the challenges of disentangling increases in crime as a result of population increases versus increased access to casino gambling.¹⁵ It has been argued that increases found in some studies can be attributed to population growth, though it is not clear if this is the case.

Some assessments have proposed that the Mohegan Sun and Foxwoods resort casinos in southeastern Connecticut are comparable to the proposed Western Massachusetts resort casinos and that potential impacts



would be similar.⁶⁰ In addition, residents in our community forums and interviews often described Connecticut casino impacts as likely impacts of a Western Massachusetts casino. Thus, it is important to examine the impacts that have been documented in Connecticut. An analysis of crime rates in Connecticut found that overall crime increased slightly in the five towns surrounding the casinos while decreasing in the state as a whole during the same time period.⁷ The main increases were seen in the casino host communities of Montville and Ledyard and primarily attributable to crime occurring on the casino premises. When using Connecticut casino impact information to anticipate the effects of the proposed Western Massachusetts casinos, one must consider that the Connecticut casinos are 1) in a more rural location, and thus may not be comparable to the proposed Springfield casino, and 2) located on tribal land, which may result in differences in impacts. In addition, the Massachusetts legislation allowing casino gambling is a different process than the Connecticut casino process and includes the negotiation of host community agreements that includes funding for public safety and the police department. Despite these caveats, it is helpful to gain an understanding of impacts on communities in an adjacent state with similar characteristics to Massachusetts.

► *Casinos – Alcohol – Crime*

Casinos generally provide free alcohol to guests within gambling designated areas. The Massachusetts Expanded Gaming Legislation allows for this practice in the proposed Massachusetts casinos. This source of free alcohol may increase access to alcohol within the host community. A number of studies have found an association between alcohol consumption and violent crime, with alcohol consumption often preceding incidents of violent crime.²⁰⁵ In addition, access to free alcohol increases risk for driving under the influence and subsequent injuries and fatalities. A study by Cotti et al. found that the presence of a casino in a county increased risk for the number of traffic collisions caused by drunk drivers by 9.2% on average.²⁰⁶ Differences in increased risk were found based on size of the community in which the casino was introduced. Rural/moderate sized communities (average study population size 17,339) experienced a 16.9% increased risk and large urban centers (average study population size 936,589) experienced a decrease in alcohol-related traffic fatalities. The decrease in urban areas was theorized to occur because more casino patrons were believed to live locally and, therefore, to have traveled less distance while intoxicated. In addition, it was believed that patrons in the urban areas likely utilized public transit more frequently. A 2009 report examined the impact of Connecticut casinos on the host and surrounding communities. One of the surrounding communities examined was Norwich, which is located within eight miles of both casinos (Foxwoods, Mohegan Sun) and the largest municipality in the region. The report stated that driving under the influence (DUI) arrests more than doubled since 1992 and the rate of motor vehicle collisions increased 27% from 1991-2004 in Norwich.²⁰⁷ The report states that the host communities of Montville and Ledyard have experienced similar increases, and that approximately 20% of motorists in the area who were arrested for DUI admitted that their last drink was at a casino. It was estimated that casino patrons were involved in one out of four arrests in Ledyard, nearly one out of three arrests in North Stonington, and one out of five arrests in Montville.¹¹⁵

► *Crime and Health*

It is well understood that victims of crime may experience physical injury. The U.S. Bureau of Justice Statistic's national *Criminal Victimization in the U.S.* report stated that in 2008, 37.3% of robbery victims and 21.2% of assault victims sustained physical injury.²⁰⁸ In addition, the experience of crime may negatively affect

the mental health of victims. Studies have shown that the immediate psychological consequences of crime include: fear, anxiety, and distrust of others.²⁰⁹ More chronic psychological consequences include: depression, attempted or completed suicide, alienation, and Post Traumatic Stress Disorder.²⁰⁹ The large body of literature on mental health suggests linkages between psychological issues and substance abuse following crime victimization.

Research also suggests that perception of crime and neighborhood disorder may also impact the state of social, mental, and physical wellbeing of a community as a whole. Studies have shown that *perceptions of safety* within a neighborhood or community impact the health of a community. Neighborhood disorder and the fear of crime have been associated with negative physical and mental health outcomes for individuals, such as coronary risk factors, low birth weight, smoking, psychological stress, feelings of powerlessness, depression, and overall mortality.²¹⁰ Neighborhood disorder is defined as the visual, physical, and social conditions in a neighborhood environment that are seen as threatening or noxious. The majority of research investigating the relationship between disorder and health suggests that the relationship is mediated through fear of crime – specifically, perceiving your environment as disordered generates fear of crime, which in turn leads to negative physical and mental health consequences. A study conducted in a low-income neighborhood in Boston demonstrated that perceiving one's neighborhood as unsafe during the day was associated with less physical activity.²¹¹ Higher asthma rates have also been associated with parent's perceptions of unsafe neighborhoods.²¹² Fear of crime has been found to have a disproportionately negative impact on certain sub-groups, most notably low-income mothers, and to a lesser extent the mentally ill.²¹³

Environmental design has been suggested as a way to improve the perception of safety in neighborhoods and prevent crime.²¹⁴ Strategies focus on creating a "watched" neighborhood by improving lighting, limiting hidden areas, ensuring proper maintenance, and designing neighborhoods to encourage pedestrian usage and the utilization of public space.²¹⁴ Mixed use zoning has also been suggested as an approach, as retail facilities would encourage a daytime presence and residential units a nighttime presence.²¹⁵ Hedayati et al. suggest that creating an environment using these strategies does in fact deter crime and, by doing so, decreases the fear of crime.^{216,217}

Existing Conditions

► Overall Crime

The FBI Uniform Crime dataset provides information on violent crime (murder and negligent manslaughter, forcible rape, robbery, and aggravated assault) and property crime (burglary, larceny or theft, and motor vehicle theft). In 2011, Hampden County had almost 1.5 times the state rate of total crime, violent crime, and property crime (Table 18). Property crime accounted for approximately 80% of total crime in Springfield and the county. Springfield had high crime rates with almost 1.5 times the county rate for total, violent, and property crime. From 2010 to 2011, overall crime rates for the state, Hampden County and Springfield decreased. Appendix N provides detailed breakdowns of types of crime for the state, Hampden County, and Springfield for 2009-2011.

Table 18: Crime Rates - Total, Violent and Property Crime

Geography	Total Crime		Violent Crime		Property Crime	
	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000
Springfield	8,946	5,809	1,581	1,027	7,365	4,783
Hampden County*	17,770	3,994	2,715	610	15,055	3,384
Massachusetts	177,009	2,679	28,219	427	148,790	2,252

Source: FBI Uniform Crime Data, 2011

*Population total for Hampden County is the total for only the reporting municipalities

► Alcohol-Related Traffic Crime

Counts of DUI and driving while intoxicated (DWI) charges for Springfield were obtained from the Hampden County District Attorney's office (Table 19). In 2011, there were 90 DUI/DWI charges in Springfield. Data on fatalities due to collisions that involved DUIs is more limited and only available at the county level. The National Highway Transportation Safety Administration's Fatality Analysis Reporting System reports that in 2011, there were 141 collision-related fatalities in Massachusetts in which a driver had a blood alcohol concentration (BAC) above the legal limit of 0.08 or above, nine of which occurred in Hampden County.¹⁸⁶ In Hampden County, 30% of fatalities due to collisions involved a driver with a BAC greater than 0.08.

Table 19: DUI/DWI Charges among Adults*

Geography	2009		2010		2011	
	Count	Rate per 100,000#	Count	Rate per 100,000#	Count	Rate per 100,000#
Springfield	79	70	97	86	90	80

Source: Commonwealth of Massachusetts District Attorney Mark G. Mastroianni, Hampden District Hall of Justice

*District Attorney's Office note- numbers provided may not be exact

Rate is among individuals age 18 and over; data sources: U.S. Census ACS 2007-2011, U.S. Census ACS 2012

► Perception of Crime

Community level information on perception of crime information was also obtained. Participants at all of our forums expressed concerns about the "criminal element" that a casino would bring and the overall increases in crime and types of crime often believed to be associated with gambling, including loan sharking, prostitution, etc. The Federal Reserve Bank's 2009 Discussion Paper on Springfield suggests that perceptions of crime are high in Springfield, but that they may be worse than reality.¹ The report proposes that this may be because distress is clearly visible in Springfield, and is concentrated along heavily trafficked areas including downtown and major roadways. In addition, data from a survey conducted in the Spring of 2013 as part of the CDC funded Springfield Community Transformation grant found that approximately 30% of respondents did not feel safe walking alone in their neighborhood during the day, and 60% did not feel safe walking alone at night.²¹⁸

Predicted Impacts

Based on the literature's conflicting evidence regarding impacts of casinos on crime, we anticipate a wide range of potential impacts. Based on the findings of the majority of studies, we anticipate that there could be changes ranging from a slight decrease in crime to an increase of approximately 10%. A number of measures have been described to address/deter potential increases in crime, including 1) the Expanded Gaming Act's requirement that a state police unit be located on the premises of licensed casinos or gaming establishments, 2) MGM's detailed security plans and state of the art security measures at their facilities, and 3) community impact funding included in the MGM-Springfield host agreement that the City has stated will go towards the police department and other needed City infrastructure. These measures would serve to deter crime and address any potential increases.

Perception of increased crime is also a potential issue as a number of community residents have expressed concerns about increases in crime overall and of casino-related crimes in general. However, the extent to which environmental design measures are used to prevent crime will influence perception of crime. MGM's proposed casino design measures and funding to improve areas of the City have the potential to improve perception of crime and safety.

Alcohol-related crime and public safety issues are also predicted to increase due to the likely access to free alcohol while gambling. We anticipate that driving while under the influence and associated traffic-related fatalities will likely increase based on Connecticut casino impact findings and the Cotti study's examination of casino impacts on alcohol-related traffic fatalities.^{115,206}

Summary of Key Findings:

- Crime negatively impacts the physical and mental health of crime victims. Elevated levels of perceived crime or lack of safety in a community also negatively impacts health.
- The extent to which overall crime will be affected in the host and surrounding communities is unclear, as studies have had conflicting results. Studies estimate that among those communities that experienced an increase, the average increase was 10%. The extent to which a community is accepting of the proposed casino and prepares accordingly may impact crime rates subsequent to the resort casino opening.
- Best available evidence suggests that driving under the influence may increase with likely increased access to free alcohol, thus increasing risk for collision-related injuries and fatalities.
- Community environment contributes to perception of crime and can affect actual crime rates. Environmental design elements such as enhanced lighting and infrastructure to support pedestrian activity have been shown to deter crime and increase perception of safety.
- Evidence suggests that there is a high perception of crime in Springfield. The impact of a resort casino on perception of crime is uncertain. A resort casino could increase perception of crime as some residents have expressed concern that the presence of a casino would create more crime. A resort casino could also reduce perception of crime and increase perception of safety in the Springfield downtown area due to the environmental design elements being proposed by MGM. Funding through the MGM-Springfield host agreement to enhance City properties, such as the River Walk, and provide connectivity to other downtown sections of Main Street could also enhance perception of safety if environmental design concepts were used to deter crime.

Table 20: Summary Evidence Table - Crime and Public Safety Pathway

What does the evidence say about how the decision will impact health through pathways?							
Health Determinant	Positive or negative health effect? (direction)	Likelihood of impact? (likelihood)	Number of people affected? (magnitude)	How strong is the health impact? (severity)	Who will be impacted? (distribution)	Strength of evidence supporting impact on health	Uncertainties and Contextual Comments
Crime (Violent and Property)	-	possible	low to moderate	moderate to high	casino patrons, community residents and visitors	fair	
Perceived Safety/Crime	-	uncertain	high	low to moderate	community residents and visitors	fair	
Alcohol related traffic crime and fatalities	-	likely	low	high	casino patrons, other motor vehicle drivers and passengers, pedestrians, bicyclists	fair to strong	
Legend*	Direction: positive (+), negative (-), mixed (+/-), unable to assess (?) Likelihood: likely, possible, unlikely, uncertain Magnitude: low (<500), moderate (500-10,000), high (>10,000) Severity: low (transient/minimal health symptoms), moderate (chronic/more severe transient health symptoms), high (severe chronic symptoms or death) Distribution: population most likely to be affected by the changes occurring due to a resort casino				Strength of Evidence: very strong (strong, quality evidence base), strong (strong evidence base with some conflicting evidence but overwhelmingly supporting pathway), fair (moderate strength/quality evidence base with conflicting evidence but majority supports pathway), weak (little evidence that is of moderate or weak quality), none (no evidence)		

Recommendations and Monitoring

This section describes 1) WMCHIA recommendations aimed at enhancing positive and mitigating negative predicted health impacts identified in the assessment, and 2) the monitoring components recommended to assess implementation and efficacy of recommendations. Below is a brief overview of the process used to develop recommendations and components of our monitoring plan. Following these overviews are sections describing general and pathway specific recommendations and monitoring indicators. Each section includes: 1) pathway diagram with findings (pathway specific sections only), 2) a brief overview of key findings, and 3) a table that includes recommendations to address key findings along with a preliminary set of monitoring indicators and responsible parties.

► *Recommendations*

Recommendations are evidence-based or best practice methods tailored to meet local needs to the extent possible. An initial set of general, overarching and pathway specific recommendations was developed based on assessment findings and interviews with key stakeholders and content experts. Modifications were made based on feedback from these groups and the WMCHIA Advisory Committee. The WMCHIA Advisory Committee reviewed the final draft and was in overall agreement with the recommendations. The general terms host community and casino operator are used in the recommendations, except when referring to elements specific to MGM or the City of Springfield.

► *Monitoring*

Monitoring will help decision-makers, local communities and other stakeholders understand the impact that a Western MA casino has on 1) the health determinants and outcomes that they identified as important during the WMCHIA process, and 2) the adoption and efficacy of WMCHIA recommended strategies that reflect community priorities. As part of this process, it is recommended that the data gathered through the state's casino evaluation and research initiative conducted by the University of Massachusetts, titled the "Social and Economic Impacts of Gambling in MA Study" (SEIGMA), be made publicly available through the MGC website, the SEIGMA website, or another avenue as deemed appropriate. In addition, it is recommended that the casino operators provide data to complement data gathered through this initiative. The indicators recommended for monitoring in the following tables include both process and impact outcomes. Process indicators are measures used to assess whether the recommended strategies are implemented. Impact indicators are measures that assess whether the recommendations have an impact on social determinants of health and/or health outcomes.

General Recommendations and Monitoring Plan

Based on assessment findings, a set of overarching recommendations were developed to promote overall positive health impacts and reduce existing health inequities. The assessment indicated that there is an opportunity for a casino to positively impact health for some pathways if the casino operator plans are part of an integrated plan to address existing needs in the region (e.g. workforce development, public transit). Stakeholders expressed this hope, but also the concern that the window of opportunity was primarily during the application phase. In addition, the assessment indicated that there is potential to either improve or exacerbate the existing inequities in health and the social determinants that affect health in the county. As discussed in the introduction, health inequity is defined as “disparities in health outcomes that emanate from unjust and unfair differences in social, economic and environmental conditions.”²¹⁹ — Though there are aspects of the MGM-Springfield host community agreement and the Expanded Gaming Act that demonstrate the importance of equity by promoting the importance of a diverse workforce, it is not clear that plans are sufficient to address systemic barriers that create inequities, such as current workforce development barriers that may disproportionately affect specific populations. The following are recommendations to ensure that these factors are explicitly considered during the application review process and that processes are created to ensure ongoing review and modification of strategies (Table 21).

Table 21: General Recommendations and Monitoring Plan

Key Finding(s)	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
Integrating resort casino plans with other initiatives in the region creates the greatest opportunity to address existing prioritized regional needs and increase the potential to positively impact health. A resort casino has the potential to improve or worsen health inequities depending on strategies implemented.	<p>1. The Massachusetts Gaming Commission should include the following in their evaluation of casino operator Phase 2 applications:</p> <ul style="list-style-type: none"> a. how the casino operator plans to leverage existing regional resources and feed into integrated strategies to address existing prioritized regional needs, including but not limited to: improved public transit and infrastructure to support alternative methods of transportation; regional workforce development and career pathway programs; livable wage employment; and addressing disordered gambling b. the extent to which the casino operator describes plans to minimize negative health impacts and promote positive health impacts 	MGC	II: casino operator plans include regional needs and health impact components	PHC	January-April 2014
See above	<p>2. A transparent, dynamic process should be established that ensures continued collaborative work between licensed casino operator, municipalities, community organizations, etc. during casino development and operation, to: 1) evaluate the extent to which resort casino development and operation improves health equity and existing regional prioritized needs, 2) modify plans as needed, and 3) allocate funding to support implementation of modified plans. The process should include the following:</p> <ul style="list-style-type: none"> a. The MGC should make gaming impact data publicly available by annually posting reports based on data from casino operators and the MGC funded research team (UMass SEIGMA) on a state website. Reports should include data on monitoring indicators identified in this report and other casino impact data as deemed appropriate. b. Reports should include but not be limited to employment and workforce development reports (where hired from, vulnerable population statistics, retention rates, etc.), 	<ul style="list-style-type: none"> - MGC - casino operator - UMass SEIGMA - Workforce Collaborative - Problem Gambling Collaborative - Transportation Collaborative (see corresponding recommendation sections for information on Collaboratives) 	<p>PI: data and reports posted on website</p> <p>PI: evaluation of efficacy of strategies completed</p> <p>PI: collaborative identification of any needed modification of strategies</p> <p>PI: public posting of recommended modifications to strategies</p>	PHC	annually

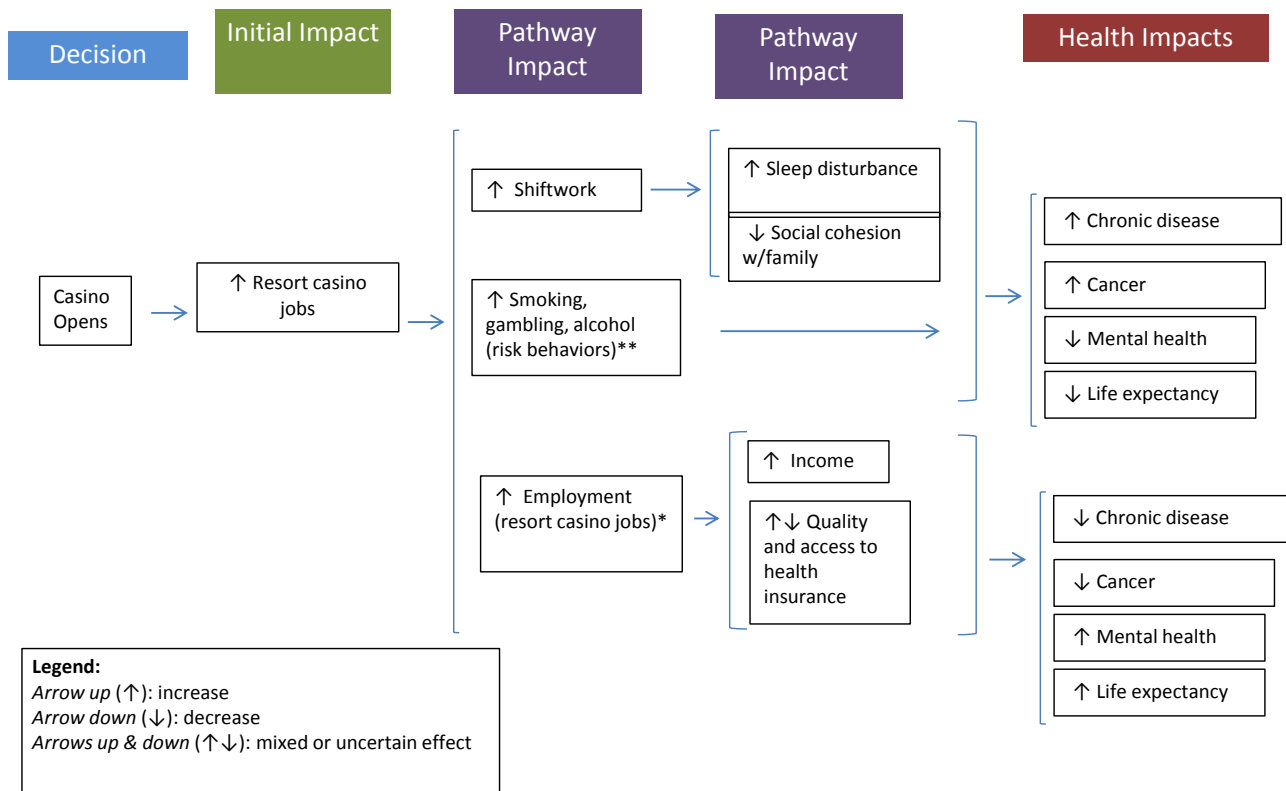
Key Finding(s)	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
	<p>traffic and transportation reports, disordered gambling reports, etc. The State of PA provides an example of this form of publicly available data for workforce diversity.²²⁰</p> <p>c. These reports should be reviewed annually by the Workforce, Problem Gambling and Transportation Collaboratives identified in jobs/employment, traffic and access to gambling pathway recommendations to: 1) assess whether strategies are improving health equity and addressing prioritized regional needs, 2) modify strategies as needed based on data, 3) reallocate funding to modified initiatives as needed, 4) make connections to other efforts across the community that compliment casino efforts.</p> <p>d. The host community and MGC should make Collaborative findings (2c above) available for public review</p>				
See above	<p>3. The MGC and host community should create processes to allow for data-driven assessment and modification of casino operator strategies, host community agreement strategies, and other casino revenue funded activities as needed. These processes should also allow for the appropriate reallocation of funding to support modifications. The assessment should demonstrate how strategies are or are not effectively: addressing negative casino impacts, integrating casino operator plans with other strategies to improve prioritized existing regional needs, addressing health inequities.</p>	<p>- MGC - host community</p>	PI: processes in place	PHC	annually

* PI=Process Indicators (measures used to assess whether the recommended strategies are implemented)

II= Impact Indicators (measures used to assess whether the recommendations have an impact on social determinants of health and/or health outcomes)

Jobs and Employment

Figure 16: Jobs & Employment Pathway Findings



* Assessment focus is on impact of employment on unemployed

** Relates specifically to casino employees

The assessment found that the resort casino would increase job opportunities in the county and subsequently have a positive effect on employment and health among unemployed individuals. Existing unemployment rates in Springfield are 64% higher than the state unemployment rate and 30% higher than that of the county. In Springfield and the county as a whole, large racial/ethnic inequities exist for unemployment, which likely contributes to existing health inequities. Local hiring would ensure that the host and surrounding communities directly impacted by a resort casino would have the greatest employment-related benefit. It was also found that current regional workforce challenges and barriers - including limited workforce readiness skills, public transit, and available adult basic education - could limit the potential positive effect. In addition, turnover rates may be high as best available evidence suggests that resort casino entry level position rates may be as high as 40%. Estimates are based on rates found for other casinos and are similar to those found for entry level positions and hospitality and retail industry positions. The assessment also found that attributes of resort casino jobs could negatively impact health. Studies have found that casino employees have a higher prevalence of smoking, alcohol use, and disordered gambling. In addition, casino and hotel positions that require shiftwork could negatively impact health as shiftwork has been found to increase risk for negative health outcomes. In

particular, night shift work has been found to be particularly detrimental for some people because of circadian rhythm dysfunction.

The Massachusetts Casino Careers Institute training programs for resort casino positions will help prepare the local workforce for the resort casino positions. However, there is concern that unemployed and underemployed most in need may not be able to access needed basic education required to qualify for the MA Casino Careers Institute and resort casino positions. The following recommendations were developed based on extensive input from representatives from the MA Casino Careers Training Institute and the Hampden County Regional Employment Board and are meant to support the work that will take place by the Casino Careers Training Institute to build workforce capacity (Table 22).

Table 22: Jobs and Employment Recommendations and Monitoring Plan

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
The more casinos hire locally (i.e. host community, surrounding communities, county), the greater the positive benefits to the communities being impacted by the casino.	1. Casino operator should clearly articulate their plans to meet their stated goal to hire at least 35% of its employees from Springfield and no more than 10% from outside the City and surrounding area. These plans should include a definition of the term “surrounding area” and should also state how the casino operator plans to meet these goals given identified existing workforce barriers that were identified in this assessment.	casino operator	PI: Clearly defined strategies	Workforce Collaborative (see below)	annually
			II: Total number of resort casino employees; number from host community, surrounding communities, county, region	casino operator	annually
			II: Employment rate – host community, surrounding communities, county, region	UMass SEIGMA	baseline and annual follow-up
			II: Unemployment rate- host community, surrounding communities, county, region	UMass SEIGMA	baseline and annual follow-up
			II: Position characteristics, including average income, percent full-time, percent shiftwork, percent positions that provide economic self-sufficiency, turnover rates	casino operator	annually
Regional barriers exist that could prevent those most in need from obtaining the new resort casino jobs. They include: limited workforce readiness capacity, limited community outreach to	2. MGC should provide funding to the Massachusetts Casino Careers Training Institute to convene a regional Workforce Collaborative as part of its regional efforts. The Workforce Collaborative should promote cross-sector strategies to ensure 1) needed workplace readiness training to obtain and retain resort casino jobs, 2) support as trainees transition from training to employment, 3)	- MGC - Western MA Casino Careers Training Institute	PI: Funding provided to support collaborative PI: Collaborative in place	Partners for a Healthier Community	baseline and annual follow-up

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
link unemployed individuals to needed basic adult education/training, and limited access to needed adult basic education (ABE) and English as a second language courses (ESOL).	strategies and programs are in place to ensure that the underemployed and unemployed are receiving training needed to obtain resort casino positions. This collaborative should include, but not be limited to, local community colleges, regional employment board, casino operator, vocational training organizations, Literacy Works, Springfield Adult Basic Education Collaborative, and public health agencies.				
Regional barriers exist that could prevent those most in need from obtaining the new resort casino jobs. (see above)	<p>3. Workforce Collaborative should identify and implement formal cross-sector strategies to address the following:</p> <ul style="list-style-type: none"> a. Identifying and addressing barriers to employment among local residents, vulnerable populations and those experiencing unemployment disparities b. Identifying those in need of additional workplace readiness training prior to hiring and/or upon employment and to ensure that identified needed training is received c. Connecting and streamlining outreach, training and retention components of workforce development 	Workforce Collaborative	<p>PI: Strategies identified and in place</p> <p>II: Number of people receiving basic adult education and ESOL through identified strategies</p> <p>II: Number receiving workforce readiness training</p> <p>II: Number of people receiving services through outreach efforts</p>	Workforce Collaborative	annually
Regional barriers exist that could prevent those most in need from obtaining the new resort casino jobs. (see above)	<p>4. Casino operator should work with the Casino Careers Training Institute and the Workforce Collaborative to:</p> <ul style="list-style-type: none"> a. Clearly articulate an understanding of skills needed to obtain resort casino positions and where to obtain needed skills. b. Identify resort-casino occupations for which there may be a regional shortage, and thus negative regional impact, due to the 	casino operator	<p>PI: Clear publicly available description of resort casino career pathways</p> <p>PI: Priority occupations identified and training programs developed</p> <p>II: Number of employees advancing through resort casino career paths</p>	Casino operator	annually

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
	<p>limited number of skilled potential employees in the region (i.e. culinary, IT, technical skill programs). Training programs should be created for these prioritized occupations.</p> <p>c. As described in the Expanded Gaming Act, articulate transparent career paths with measurable criteria that allow employees to seek advancement and provide resources to obtain needed education/skills for promotion (Section 119.01(34)). Incentives should also be utilized to encourage employee participation in career paths.</p>				
Regional barriers exist that could prevent those most in need from obtaining the new resort casino jobs. (see above)	<p>5. Funding should be provided by casino operator and designated by MGC from state casino gaming revenue to the following organizations to prepare the workforce for entry into MA Casino Careers Training Institutes:</p> <p>a. Community-based organizations to strengthen outreach programs aimed at identifying those in need of additional education and training to prepare them for Casino Careers Training Institute. Funding should be provided through a grant process to qualified organizations.</p> <p>b. Regional Employment Board of Hampden County's Literacy Works Collaborative to support additional availability of Adult Basic Education and English as a Second Language courses.</p>	<p>- casino operator</p> <p>- MGC</p>	<p>PI: Funding made available for outreach and ABE and ESOL</p> <p>PI: Increased number of basic education courses</p> <p>II: Number completing basic education courses that enter MA Careers Training Institute or obtain resort casino employment</p>	Workforce Collaborative	Baseline, annually

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
Resort casino position turnover rates may be high, particularly for entry level positions	6. Casino operator should clearly articulate strategies to promote employee retention to the Workforce Collaborative and MA Casino Careers Training Institute.	casino operator	PI: Strategies clearly communicated II: Annual resort casino turnover rate	Casino operator	Annually
Limited public transit service is a documented regional barrier to accessing entry-level positions.	7. Increased availability and access to public transit (see traffic pathway recommendations)				
Large local racial/ethnic disparities exist in unemployment levels, which likely contribute to local health disparities.	8. MGC should require casino operator to monitor and report employee characteristics, including residence, race/ethnicity, sex, veteran status, etc. Data should be made publicly available through a website described in General Recommendations.	- MGC - casino operator	II: Diversity/equity characteristics of employees (race/ethnicity, sex, disability status, veteran status)	casino operator	annually
Casino employees have been found to have higher prevalence of health risk behaviors (smoking, alcohol, and problem gambling) which negatively impacts health.	9. Casino operator should implement programs to address increased casino employee risk behaviors of smoking, alcohol abuse and disordered gambling. Recommended strategy includes working with the Center for the Promotion of Work in the New England Workplace (CPH-NEW) to explore the development of a coordinated health promotion and occupational health & safety program using the NIOSH Total Worker Health (TWH) approach, which is a team-based approach that includes both management and front-line employees. Approach should include items below. ○ Design interventions including on-site and off-site employee assistance/wellness programs that include a focus on stress reduction approaches.	casino operator	PI: Interventions in place to promote employee wellness programs PI: Workplace supports in place to support healthier behaviors PI: Number of employees participating in workplace wellness programs II: Percent casino employees that smoke, have excessive alcohol consumption, or are disordered gamblers	PI: casino operator II: UMass SEIGMA	baseline and annual follow-up

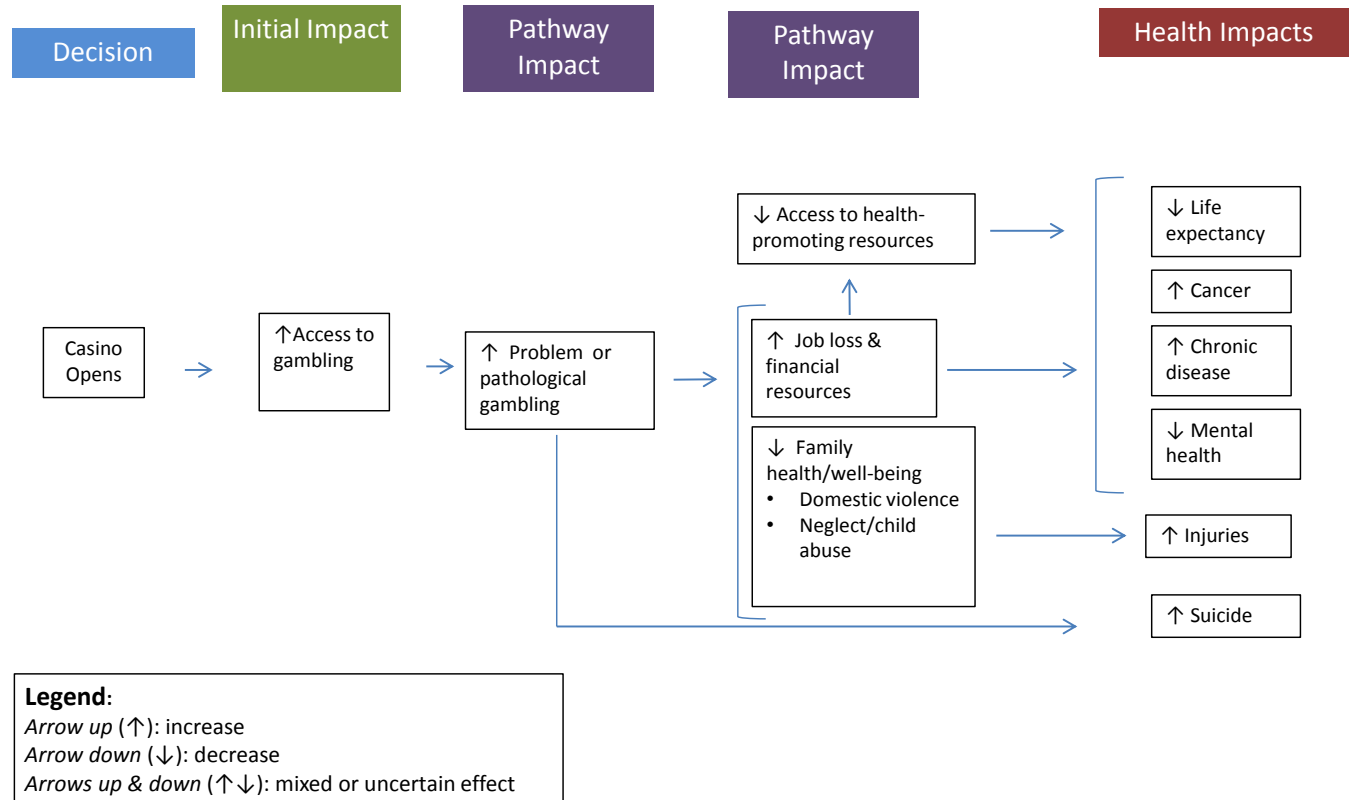
Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
	<ul style="list-style-type: none"> Implementation of workplace supports for healthier behaviors, including exercise and healthy food options on site. Appropriately targeted employee incentives; focus/support groups; employee and manager education on risk behaviors and alternative coping strategies; and other best practice models to promote participation in wellness programs. Monitoring to assess use and efficacy of programs. 				
A large proportion of resort casino employees will work non-standard work hours, or shiftwork, which has been associated with increased risk for negative health outcomes. A substantial percentage of gaming positions will work night shift-work, which has the most risk for negative impacts due to circadian rhythm disruption.	<p>10. Casino operator should implement programs to address health concerns related to shift work, including:</p> <ul style="list-style-type: none"> a. Education of employees and management on techniques to mitigate sleep disruption due to shift-work including black out curtains, ear plugs, etc. b. Consider reimbursing for or providing shift-work related sleep disruption products, such as black out curtains. c. Implementation of evidence-based policies to reduce negative health impacts of shift-work, such as ensuring adequate time to sleep between shifts (at least 11 hours between shifts) and keeping employees on standard shifts or rotating shifts forward.²²¹ d. Support for stress reduction and healthier behaviors as identified in recommendation 9 above. 	Casino operator	PI: Resort casino strategies in place to mitigate negative effects of shift work	casino operator	baseline and annual follow-up

* PI=Process Indicators (measures used to assess whether the recommended strategies are implemented)

II= Impact Indicators (measures used to assess whether the recommendations have an impact on social determinants of health and/or health outcomes)

Access to Local Casino Gambling- Problem and Pathological Gambling

Figure 17: Access to Local Casino Gambling Pathway with Findings



Problem and pathological gambling, or disordered gambling, is an addictive disorder that negatively affects the health of the individual and their family. Best available evidence suggests that an estimated 2.7% of Hampden County residents are disordered gamblers. Access to local casino gambling in Western Massachusetts would likely lead to an initial increase in disordered gambling with a probable decrease over time. Populations experiencing some of the greatest health inequities in our county are also vulnerable to higher rates of problem and pathological gambling, particularly those of low SES/income and some racial/ethnic populations. The younger one starts to gamble, the greater the likelihood that they will be a problem gambler later in life. Few people with gambling disorders seek treatment and there is currently limited local capacity to identify and treat gambling disorders. Efforts are underway to promote responsible gambling at new casino sites, including the MGC's development of a responsible gambling framework and casino operators' required inclusion of strategies to address disordered gambling in their applications. The following includes recommendations for specific strategies that complement these efforts. In some cases, strategies may already be considered as part of the MGC and casino operator efforts. However, they are included because of the community's belief and WMCHIA findings indicating that they are important components of an integrated strategy to prevent, treat and manage disordered gambling (Table 23).

Table 23: Problem and Pathological Gambling Recommendations and Monitoring Plan

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
Access to a local casino will likely lead to an initial increase in disordered gambling with a probable decrease over time.	<p>1. The Western MA Council for Gambling Accountability should work in conjunction with the MA Department of Public Health to convene a Problem Gambling Collaborative between the licensed casino operator, mental health providers, local law enforcement, healthcare providers, public health agencies, and other identified stakeholders to develop best practice cross-sector strategies to identify, treat and manage pathological gambling. Examples of the type of cross-sector initiatives to be considered include:</p> <ul style="list-style-type: none"> a. gambling courts b. screening in high-risk populations (e.g. mental health clinics, emergency rooms) c. general screening by primary care providers (e.g. short screening tools as part of medical history questionnaire)²²²⁻²²⁴ d. health insurance reimbursement for disordered gambling screening 	<ul style="list-style-type: none"> - Western MA Council for Gambling Accountability - MDPH 	<p>PI1: Collaborative convened PI2: Cross-sector initiatives to address disordered gambling implemented</p>	<p>PI1:PHC PI2: Problem Gambling Collaborative</p>	baseline and annually
There may be a lack of understanding of problem and pathological gambling as a serious problem in the general population.	<p>2. The following strategies should be implemented to prevent development of disordered gambling and to raise community awareness of disordered gambling, risk factors and treatment options. Funding should be provided through the Public Health Trust Fund to implement the strategies described below.</p> <ul style="list-style-type: none"> a. MGC, casino operator and Problem Gambling Collaborative should employ Strategic Frame Analysis™ approach to creating communications about gambling 	<ul style="list-style-type: none"> - MGC - casino operator - Problem Gambling Collaborative - MDPH - local mental health providers - local public health agencies 	<p>PI: Funding provided for prevention strategies PI: Disordered gambling public awareness campaign conducted PI: Problem gambling information center located in licensed casino operator facility II: Number of disordered gamblers</p>	<p>PI: Problem Gambling Collaborative II: UMass SEIGMA</p>	baseline and annually

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
	<p>as a process addiction.²²⁵ The aim is to reframe gambling addiction as a social issue, change the public conversation about solutions, and advance systemic actions.</p> <p>b. MGC, casino operators, casino host communities and the Problem Gambling Collaborative should adopt an overarching communications framework for aligning and/or conducting joint public awareness campaigns about disordered gambling, treatment options, and where to go to get help.</p> <p>c. In addition to the Expanded Gaming Act's requirement that casino operators provide onsite complementary space for a substance abuse and mental health counseling center, it is recommended that the casino operator have responsible gambling information centers in their facilities.</p>				
The younger one starts to gamble, the greater the likelihood that they will be a problem gambler later in life.	<p>3. Prevention strategies should be conducted targeting vulnerable populations, including:</p> <p>a. The MA Department of Elementary and Secondary Education (MA DESI) should work with local schools to use the evidence-based program Stacked Deck to educate youth about gambling (e.g. odds of winning, statistics), risk factors for problem and pathological gambling, and pathological gambling as an addictive disorder.²²⁶</p> <p>b. MGC and the Problem Gambling Collaborative should work jointly with institutions of higher education to conduct a general awareness campaign</p>	<p>- local public schools</p> <p>-MA DOE</p> <p>- institutions of higher education</p>	<p>PI: Number of schools educating children on gambling and problem gambling</p> <p>PI: Number of institutes of higher education conducting disordered gambling awareness raising activities</p>	<p>PI: Problem Gambling Collaborative</p> <p>II: UMass SEIGMA</p>	

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
	using the communications strategy described in Recommendation 2 and to implement research-based disordered gambling prevention strategies with their students.				
Access to a local casino will likely lead to an initial increase in disordered gambling with a probable decrease over time.	<p>4. a. Recognizing that the MGC is developing a responsible gambling framework, it is recommended that the following practices be considered for inclusion in their best practices:²²⁷</p> <ul style="list-style-type: none"> i. self-exclusion, ii. pre-commitment, iii. limiting reward/loyalty card participation, iv. responsible features on gaming machines v. restricting access to money (e.g. no ATMs on gaming floor) vi. advertising restrictions <p>b. It is recommended that the casino operator implement the best practice policies aimed at assisting disordered gamblers in managing their addiction as recommended by the MGC Responsible Gambling initiative and the above mentioned Problem Gambling Collaborative</p>	<ul style="list-style-type: none"> - casino operator - MGC - Problem Gambling Collaborative 	PI: Disordered gambling prevention, treatment and management strategies implemented	UMass SEIGMA	annually
Casino employees have been found to have higher prevalence of health risk behaviors smoking, alcohol, and problem gambling (see jobs/employment)	5. Casino operator should train their employees on increased risk of employee problem gambling as part of the MGC regulations requiring employee training to identify patrons with problem gambling (MGC REG. 119.01(26)).	casino operator	PI: Employee education program in place II: Number of employees with disordered gambling	PI: casino operator II: UMass SEIGMA	baseline and periodically
There is limited local capacity to identify and treat gambling disorders in Western MA.	6. Funds from the Public Health Trust Fund should be used to support training and certification of local mental health and addiction providers on disordered gambling.	MGC	PI: Funding allocated to train and certify mental health providers on disordered gambling PI: Number of local	PI: Problem Gambling Collaborative	baseline and annually

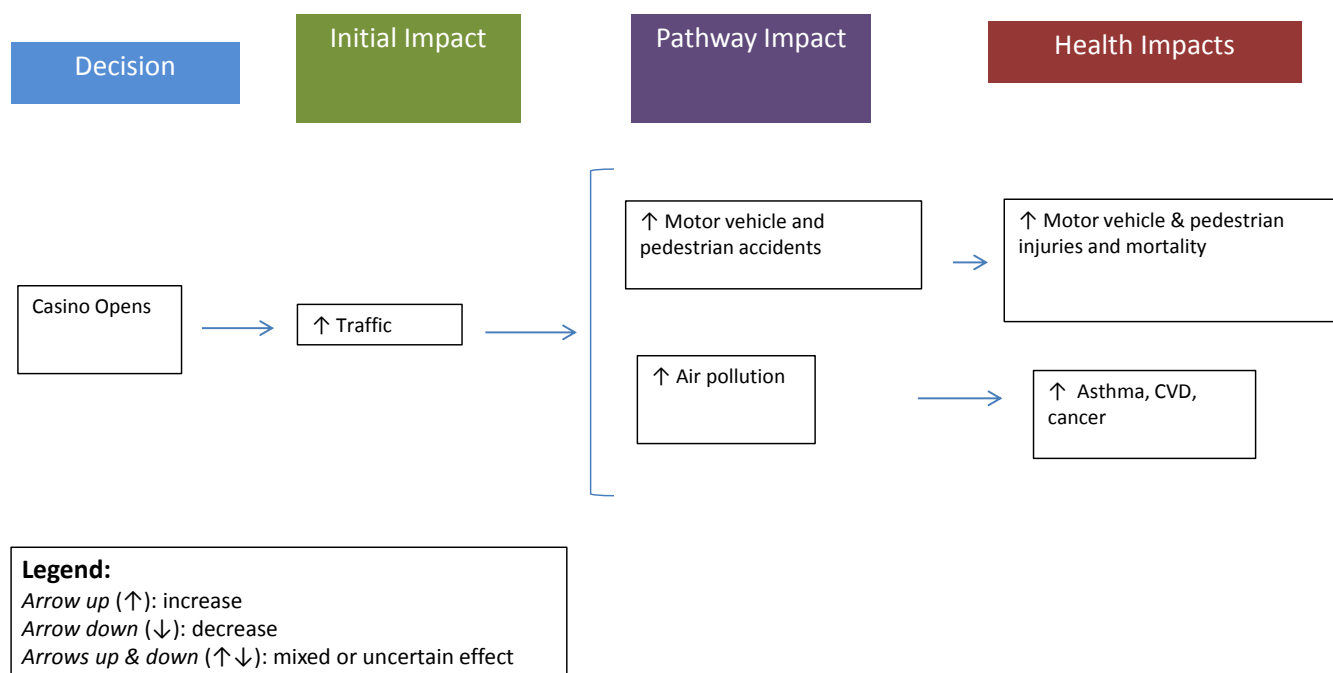
Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
			providers certified to treat disordered gambling		
Populations experiencing some of the greatest health inequities in our county are also vulnerable to higher rates of problem and pathological gambling, particularly low-SES/income individuals and racial/ethnic populations.	7. Casino operator, local treatment providers and public health professionals should ensure that all strategies to prevent, treat and manage gambling disorders are accessible to vulnerable populations, including ensuring that they are culturally competent, accessible and affordable.	Problem Gambling Collaborative	PI: Materials in a format accessible to vulnerable populations II: Percent disordered gamblers from vulnerable populations (youth and young adults, racial/ethnic populations, low income)	PI: Problem Gambling Collaborative II: UMass SEIGMA	baseline and annually

* PI=Process Indicators (measures used to assess whether the recommended strategies are implemented)

II= Impact Indicators (measures used to assess whether the recommendations have an impact on social determinants of health and/or health outcomes)

Traffic

Figure 18: Traffic Pathway with Findings



A casino will likely increase traffic regionally and in host and surrounding communities. High levels of short and long-term traffic-related air pollution increase risk for asthma, CVD and cancer morbidity and mortality. It is anticipated that the increase in traffic will lead to a slight increase in regional air pollution levels. It is likely that the increased traffic will have more of an impact on near roadway exposure to air pollution, particularly on the urban streets of Springfield as access to the casino from the highways requires travel on local roadways. Vulnerable populations that will experience disproportionate effects include children, elderly, and those with pre-existing conditions. In Springfield, Hispanics and African-Americans will be disproportionately impacted as they experience high rates of asthma and cardiovascular disease hospitalizations when compared to non-Hispanic Whites. In particular, a large number of Hispanics live within 200 meters of the likely local casino access routes and would be exposed to the increases in near roadway air pollution. Increases in traffic due to a casino may also increase risk for motor vehicle related injuries and fatalities. Predicted increases in traffic volume in Springfield reach levels associated with increased risk for pedestrian injury in urban settings found in some studies. It is not clear the extent to which other factors that affect risk for motor vehicle-pedestrian collisions (e.g. roadway conditions, intersection safety measures) may mediate this increased risk. Public transit options exist with Springfield having the most extensive public transit access in the region. However, Springfield residents still cite barriers to usage including long wait times and insufficient access. In particular, service is not provided during overnight hours and is limited on weekends. This limited service has been described as a barrier to employment for entry-level shift work positions in Springfield. Table 24 provides recommendations to reduce the potential negative impact of casino-related increases in traffic on health.

Table 24: Traffic Recommendations and Monitoring Plan

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
A resort casino will lead to an increase in traffic, which has the potential to impact health through increases in near roadway pollution, regional air pollution and increased motor vehicle collisions.	<p>1. MGC should provide funding to Pioneer Valley Planning Commission to convene a regional Transportation Collaborative to 1) identify and implement best practice strategies to reduce likely casino-related traffic increases in the region and host communities once a casino operator has been identified, and 2) make data-driven recommendations to modify strategies based on efficacy once casino is operational (see General Recommendations). Strategies should integrate casino operator plans, PVTA transit plan, municipal and other regional plans. Transportation Collaborative should include, but not be limited to, the casino operator, PVTA, municipal representatives, local and regional public health agencies, MA Department of Public Health, MA Department of Transportation, and transit advocacy initiatives. Strategies considered should include:</p> <ul style="list-style-type: none"> a. promising alternative models of transit that have demonstrated efficacy, including hub and spoke models b. use of transportation demand management strategies (i.e. strategies to reduce amount of traffic), including but not limited to promotion of public transit and infrastructure to encourage alternative modes of travel such as walking or biking 	-MGC -PVPC	<p>PI1: Funding provided to convene Transportation Collaborative PI2: Collaborative convened PI3: Integrated strategies to reduce traffic identified and implemented</p> <p>II: Traffic volume – host community, surrounding community, county II: Motor vehicle collisions II: Motor vehicle collision injuries and fatalities II: Air pollution</p>	<p>PI1&PI2: PHC PI3: Transportation Collaborative II: MGC designated agency, such as the Pioneer Valley Planning Commission or UMass SEIGMA</p>	baseline and annually

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
A resort casino will lead to an increase in traffic, which has the potential to impact health through increases in near roadway pollution, regional air pollution and increased motor vehicle collisions.	<p>2. Casino operator, host community, surrounding communities and PVTA should implement best practice strategies to promote the use of public transit and alternative modes of transportation. This includes MGM implementation of the transportation demand strategies identified in their traffic assessment report, which includes but is not limited to:</p> <ul style="list-style-type: none"> a. Promotion of employee use of public transit, carpooling, walking and biking to work b. Bicycles provided for employees c. Programs for employees that use to have access to transportation at work as needed, such as Zipcar™ and guaranteed ride home d. Trolley bus system to provide timely transportation service between Union Station, major Springfield attractions and proposed resort casino. Cost structure should be implemented that maximizes usage (e.g. fee free, tiered costs). Trolley bus should use alternative fuel or other mechanisms to minimize impact on air quality. 	<ul style="list-style-type: none"> - casino operator - host community - surrounding communities - PVTA 	<p>Pl: Strategies in place to promote alternative modes of transportation</p> <p>Il: Number of casino employees and patrons using public transportation</p>	<p>Pl: Transportation Collaborative (see recommendations)</p> <p>Il: MGC designated agency, such as the Pioneer Valley Planning Commission or UMass SEIGMA</p>	annually
A resort casino will lead to an increase in traffic, which has the potential to impact health through increases in near roadway pollution, regional air pollution and increased motor vehicle collisions.	<p>3. Casino operator should document and report to the Transportation Collaborative their methods of promoting public transit, alternative transportation measures and how efforts align with regional strategies</p>	casino operator	Pl: strategies reported	Pl: Transportation Collaborative	annually

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
Barriers have been cited to accessing public transit in Springfield, including long wait times and insufficient coverage. Inadequate access to public transit has been described as a barrier to entry-level shift work employment.	<p>4. Recognizing that limited funding over time has resulted in restricting the responsiveness of Pioneer Valley Transit Authority service to fully address local needs, we recommend the following:</p> <ul style="list-style-type: none"> a. MGC should ask PVTA and MDOT to identify transit service required to address the needs created by the new resort casino. Based on the proposed increase in transit service, MGC should allocate a suitable percent of revenue to transit upgrades and require the casino operator to provide an appropriate amount as well. Assessment of transit needs should include consideration of current transit capacity to support employee shiftwork. b. The casino operator should assess potential for instituting public transit mechanisms for their employees (e.g. casino operator bus), particularly in the case where public transit options do not provide adequate service. 	<ul style="list-style-type: none"> - MGC - PVTA - MDOT - casino operator 	<p>Pl: assessment of public transit needs completed</p> <p>Pl: funding provided to upgrade transit system</p> <p>Il: number of patrons and employees utilizing public transit</p>	<p>Pl: Transportation Collaborative (see recommendations)</p> <p>Il: casino operator</p>	annually
Increases in traffic due to a casino may increase risk for motor-vehicle related injuries and fatalities, including pedestrian and cyclist injury.	<p>5. Casino operator should provide funding to assess intersections in a mile radius of the proposed casino, and in partnership with municipal agencies, upgrade those that are found by the Transportation Collaborative to be significantly adversely impacted. Upgrades should promote traffic calming and facilitate pedestrian and bicycle use. This should include street lighting and decorative amenities to promote walking and biking, which would also serve as a crime prevention measure (see Crime Recommendations- crime prevention through</p>	<ul style="list-style-type: none"> - casino operator - host community municipal departments as appropriate 	<p>Pl: assessment conducted</p> <p>Pl: upgrades completed</p>	<p>Pl: Transportation Collaborative</p> <p>Pl: Host Community</p>	baseline and one year following opening

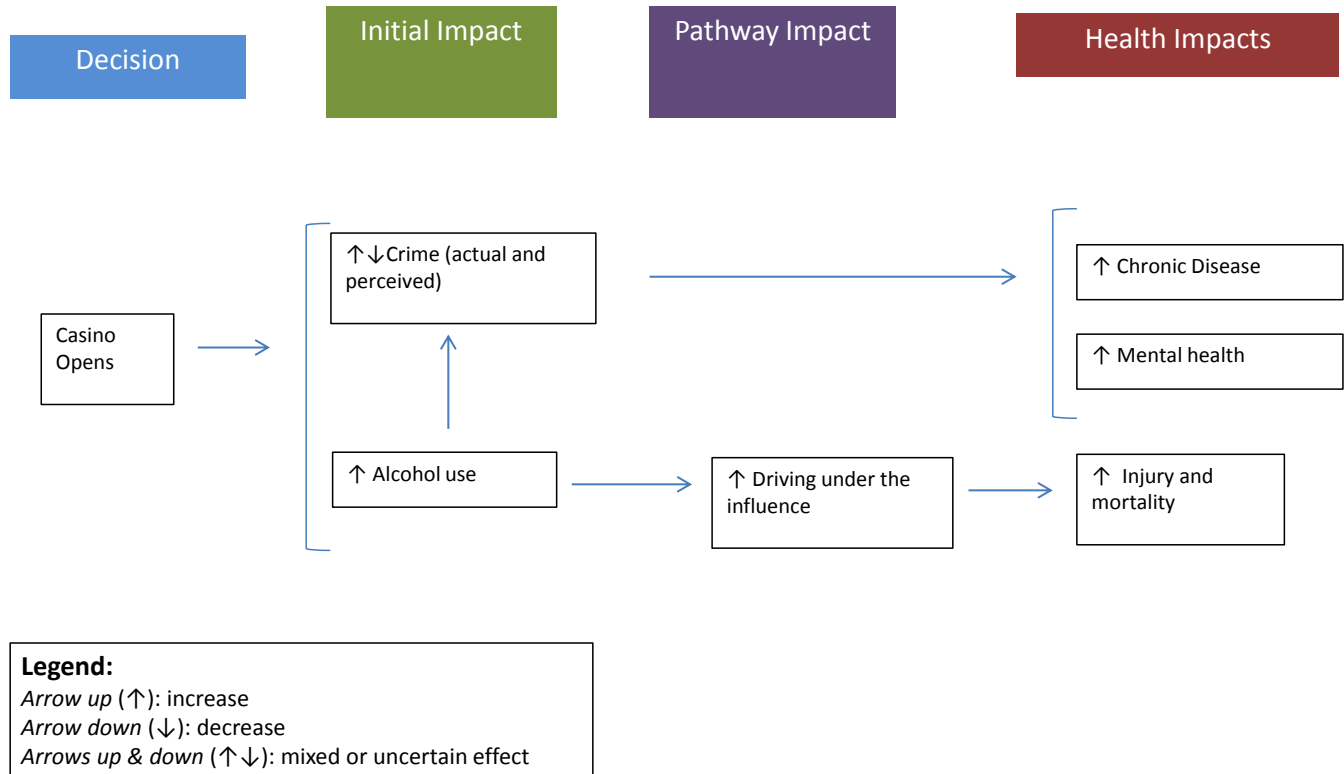
Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
	environmental design).				
Increases in near roadway exposure to air pollution due to resort casino traffic will likely increase risk for asthma, CVD and cancer for some vulnerable populations in Springfield.	6. Casino operator and municipal agencies should develop strategies to minimize impact of near roadway air pollution exposures on vulnerable populations to the extent possible through traffic demand management strategies, or other evidence-based strategies to reduce exposure (e.g. barriers, roadside vegetation). Strategies should also be developed to maintain these interventions.	- casino operator - host community municipal departments as appropriate	PI: Strategies in place II: Asthma and cardiovascular disease prevalence and hospitalizations	PI: Transportation Collaborative (see recommendations) II: UMass SEIGMA	annually

* PI=Process Indicators (measures used to assess whether the recommended strategies are implemented)

II= Impact Indicators (measures used to assess whether the recommendations have an impact on social determinants of health and/or health outcomes)

Crime and Public Safety

Figure 19: Crime & Public Safety Pathway with Findings



Stakeholders have raised concerns that a casino will increase crime in host and surrounding communities. It is unclear the extent to which a casino would impact crime as studies have had mixed findings. Those studies finding an increase have found an average increase of 10%. Crime victims experience negative physical and mental health impacts. Best available evidence suggests that driving under the influence will probably increase with likely free access to alcohol at casinos. This would subsequently lead to increased risk for collisions and increased likelihood of associated injury and fatalities. Community environment contributes to perception of crime and can affect actual crime rates. Perception of crime was found to be high in Springfield. Perceived crime and safety in the community has been found to negatively impact health. As some community residents have expressed concern about a casino increasing crime rates, a casino could increase perception of crime. Conversely, elements included in MGM’s proposed design and funding through the host agreement to improve properties in the City could decrease perception of crime. Community characteristics and the extent to which a community is accepting of the proposed casino and prepares accordingly are believed to affect a casino’s impact on crime rates in the host community. Environmental design aimed at increasing foot traffic and “eyes on the street” has been shown to decrease crime. Table 25 provides recommendations to address potential impacts of the proposed casino on crime, perception of crime, and alcohol-related motor vehicle collisions.

Table 25: Crime & Public Safety Recommendations and Monitoring Plan

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
A casino may increase crime rates and perception of crime.	1. Casino impacts on crime rates and the perception of crime in the host community should be monitored by the Police Department. Efforts should be targeted appropriately to monitor and address direct impacts on crime in the neighborhoods in which the casino will be located (in Springfield - South End, Metro Center), and indirect impacts to surrounding neighborhoods. Community policing strategies – which engage local residents, the police department, other community stakeholders, and the casino in partnership - should be used to monitor and address crime.	host community police department	PI: assessment of crime rates and perception of crime conducted PI: community policing strategies in place to assess and deter crime II: crime rates (overall and by type)	PI: Springfield Police Department II: UMass SEIGMA	baseline and annually
Community environment contributes to perception of crime and can affect crime rates.	2. MGM has proposed design concepts that include elements that will prevent crime. A joint casino and host community effort should be established to ensure 1) the utilization of these and other crime prevention through environmental design concepts in casino development, planning, and operation stages, and 2) that these efforts are aligned with any related city activities. Crime prevention strategies should include ensuring proper lighting, offering pedestrian amenities, and maintaining private properties and public spaces. These strategies will also support efforts to promote walking and biking as alternative modes transportation (see Traffic Recommendations).	- casino operator - City of Springfield (planning department, DPW, etc.)	PI: environmental design crime prevention strategies implemented II: crime rates	PI: PHC II: UMass SEIGMA	baseline and annually

Key Finding	Recommendation	Entity Responsible for Enacting Recommendations	Monitoring Indicators*	Monitoring Agency*	Timing
Perception of crime is high in Springfield. It is likely higher than the reality due to the visibility of distress, particularly heavily trafficked corridors.	3. The City of Springfield and other community development organizations should implement strategies to support the proposed MGM proposal and host agreement elements that increase foot traffic and “eyes on the street” by promoting connectivity between the casino, other City attractions (e.g. museums, Basketball Hall of Fame) and Main Street. Examples include publicly available maps, street kiosks, and cobblestone walkways.	- City of Springfield - casino operator	PI: strategies implemented to promote connectivity	PI: PHC	annually
Driving under the influence will likely increase with greater access to free alcohol, thus increasing risk for collisions leading to injury and fatalities.	4. Implement best practices to reduce likelihood of overconsumption of alcohol and driving under the influence, including: <ul style="list-style-type: none"> a. Funding from the host agreement community impact fund should be provided to the local health department to conduct a campaign about risks and consequences of alcohol in collaboration with community partners and the licensed casino operator. The campaign should be both community-wide and at the resort casino site. b. Host community police department should conduct expanded sobriety checks¹⁶⁸ c. Host community police department and casino operator should strictly enforce minimum legal drinking age and zero tolerance laws 	- host community health department - casino operator - host community police department	PI: public awareness campaign conducted PI: strategies implemented to prevent driving under the influence II: DUI/DWI rates – host community, surrounding communities, county II: Injury and mortality due to DUI/DWI related motor vehicle collisions	PI: host community health department II: UMass SEIGMA	baseline and annually

* PI=Process Indicators (measures used to assess whether the recommended strategies are implemented)

II= Impact Indicators (measures used to assess whether the recommendations have an impact on social determinants of health and/or health outcomes)

Strengths and Limitations

Strengths

- The HIA report provided information on the impacts of a new resort casino in Western Massachusetts that can be proactively used to inform decision-making related to the licensing and operation of the casino so that decisions and processes have the strongest opportunity to result in positive health impacts.
- The assessment specifically examined the impacts of the proposed casino on the potential host community of Springfield and the county given current existing conditions.
- The HIA proactively engaged a wide range of local, regional, and statewide stakeholders. The report, including the assessment and recommendations, reflects the needs and priorities of the community.
- The assessment incorporated a wide variety of data sources and evidence, including scientific peer-reviewed and gray literature; technical reports commissioned by casino operators; previous casino assessment reports; national, state and local data sources; content and technical expert opinion; host community agreements; and local and regional stakeholder input.


Limitations

General

- The scope of the HIA was limited by time and resource constraints. There were numerous potential impacts and populations that would likely be impacted by a new casino. Some important impacts were not able to be assessed, including the impact that a resort casino would have on economic development in Springfield. Some stakeholders believe that a resort casino would bring much needed economic development to the City, which could potentially impact the health of a number of residents. The short timeframe for completion and limited resources restricted our focus to the four prioritized pathways and to the potential host communities.
- The decision to focus on all potential host communities in Western Massachusetts, in an effort to maximize the impact of the HIA, limited our scope as well. Conducting community engagement efforts and assessment activities for the three potential host communities that were under consideration in the initial stages of our HIA reduced the number of impact areas that we could focus on.

Data and Research


- There have been a large number of assessments and studies examining the impact of casinos. The research has been conflicting for a number of these areas, likely because of differences in study design, baseline differences in communities examined, type of casino, etc. Thus, for some areas examined it is challenging to predict how a casino would impact Springfield. We have used public health principles and our best judgment to identify potential risks and benefits based on how these conflicting studies relate to specific proposals and baseline conditions in Western MA. In all cases, we have been transparent with regard to the degree of certainty in our assessment of potential impacts. In some cases, because it was unclear how the casino would impact the host communities, we were unable to make clear predictions.

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- We used the best available data that we could gather to describe existing conditions. In some cases, data was only available for the county, region, or state. In those cases, we used that information to estimate conditions in the host communities or county. In addition, for some data indicators, older data was the best available data and used to approximate current conditions. These estimates may differ somewhat from actual conditions.
 - The U.S. Census data used was predominantly three or five year pooled data estimates because of the small number of respondents for a given year. They are only estimates and may differ from current conditions.
 - We used data from casino operator traffic, employment, and socioeconomic assessment reports in our HIA assessment as they were the best available source of data in some cases. We recognize that this is not an unbiased source of information and that estimates may not be entirely accurate.

Methodological

- We made quantitative predictions when feasible using findings from research studies or methodologies utilized in other HIAs or assessments. These predictions are estimates meant to characterize impacts and only take into account a subset of factors likely to affect the actual impacts. Qualitative predictions were made if we were not able to make quantitative predictions. Again, these are estimates based on generalizations made from research and other evidence based on existing conditions.
- In our assessment of regional air pollution impacts, we were unable to use methods to translate the increases in regional air pollution to health impacts. We reached out to several experts but were unable to conduct the dispersion modeling needed to determine how the regional increases in air pollution would impact existing levels due to time constraints.

Conclusions



A casino opening in Western Massachusetts is likely to have a number of potential impacts on health determinants and health outcomes related to jobs/employment, access to local casino gambling, traffic, and crime/public safety. There will likely be a mix of positive and negative health impacts. The extent to which the effects are positive or negative are dependent on the type of local and regional strategies put in place to promote positive impacts. Cross-sector collaboration and strategies that involve casino operators, municipalities, government agencies, local businesses, regional planning and transportation organizations, public health, health care, local service providers, municipal departments (e.g. health and human services, police, planning, economic development), non-profits, and other stakeholders in efforts to align casino operator activities with local and regional strategies have the greatest opportunity for synergy and positive impact.

In addition, the new casino and required mitigation measures required by the Expanded Gaming Act legislation present an opportunity to address existing identified needs in the Hampden County region, including but not limited to:

- expanded public transit service;
- access and promotion of alternative methods of transportation;
- workforce development to reduce existing barriers to employment;
- increased awareness of disordered gambling and number of individuals seeking treatment;
- increased capacity to treat disordered gambling locally;
- and improved physical elements of the City of Springfield's built environment that would reduce/deter crime, increase perception of safety, and increase walkability and connectivity to other neighborhoods and city amenities that would create an impression of a thriving district.

The new resort casino also has the potential to impact health equity in the region. New employment opportunities may lead to a reduction in some existing health inequities depending on the strategies put in place to ensure that vulnerable populations have the opportunity to access needed jobs. Increases in exposure to near road-way air pollution and access to local casino gambling have the potential to increase existing health inequities as vulnerable populations may experience disproportionately negative impacts. Thus, it is important to carefully consider the effects on these vulnerable populations and identify strategies to mitigate identified negative effects.

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Appendices

Appendix A: Adult Health Prevalence Data - Behaviors, Physical and Mental Health

Indicator	Springfield		Hampden County		Massachusetts		BRFSS years used
	%	95% CI	%	95% CI	%	95% CI	
Health Behaviors and Access							
Fruits and Vegetable Consumption (5 or more per day)**	22.15	20.01, 24.46	24.86	20.76, 29.49	27.43	26.75, 28.1	2005, 2007, 2009
Regular Leisure Time Physical Activity ***	44.27	41.9, 46.68	48.24	43.45, 53.01	52.22	51.6, 52.84	2001, 2003, 2005, 2007, 2009
Current Smoker***	23.16	21.41, 25.01	21.21	17.74, 25.35	15.87	15.43, 16.3	2008, 2009, 2010
Inability to see a Doctor Due to Cost**	12.82	11.03, 14.84	9.86*	7.5, 12.99	6.81	6.3, 7.32	2009, 2010, 2011
Physical Health							
Obese (only) **	31.6	29.15, 34.17	26.22	21.76, 31.47	22.97	21.75,22 .97	2008, 2009, 2010
Overweight or Obese**	67.08	64.65, 69.43	62.35	57.03, 67.41	58.85	57.89, 59.81	2009, 2010, 2011
Hypertension**	31.15	29, 33.43	29	25.68, 33.26	25.82	25.22, 26.42	2008, 2009, 2010
Heart Disease and Stroke**	6.98	5.99, 8.19	6.73	5.42, 8.35	5.85	5.58, 6.13	2008, 2009, 2010
Asthma**	14.67	12.91, 16.61	12.06	10.17, 14.25	10.33	9.88, 10.78	2008, 2009, 2010
Diabetes**	11.57	10.22, 13.13	9.58	7.5, 12.27	7.51	7.2, 7.82	2008, 2009, 2010
Overall Health Status- Poor or Fair Health**	23.14	21.09, 25.34	16.84	13.88, 20.46	11.94	11.52, 12.35	2009, 2010, 2011
Mental Health							
Current Depression**	15.31*	12.08, 19.23	10.32	7.42, 14.29	7.43	6.71, 8.15	2006, 2008, 2010
General Mental Health – 15 or more days of Poor Mental Health***	15.33	13.9, 16.88	12.17	10.15, 14.61	8.86	8.52, 9.21	2007-2011

Source: Massachusetts Behavioral Risk Factor Surveillance Survey

*Prevalence estimate for the community meets one but not both DPH REPORTING RULES. (The estimates have adequate sample size, however, the precision of 95% CI is larger than the allowable requirements). The MDPH states "In order to provide data for more Massachusetts communities, we include town level estimates that may be based on relatively few respondents or have standard errors that are larger than average. The confidence interval (CI) for this community is wider than the normal limits set by MDPH. Therefore, the estimate for this town should be interpreted with caution."

**Three years average prevalence among adults in MA

***Five years average prevalence among adults in MA

~Unavailable

Appendix B: Age-Adjusted Hospitalization Rates - Total and by Race/Ethnicity, 2009

	Springfield			Hampden County			Massachusetts		
	Count	Rate per 100,000		Count	Rate per 100,000		Count	Rate per 100,000	
		Rate	95% CI*		Rate	95% CI*		Rate	95% CI*
Cancer									
Total	492	336	307 - 366	1,712	336	320 - 352	26,674	387	382 - 391
White, Non-Hispanic	275	310	273 - 348	1,374	317	300 - 334	24,651	379	374 - 383
Black, Non-Hispanic	106	391	316 - 466	141	461	384 - 538	1,490	453	429 - 477
Hispanic	105	355	281 - 428	156	325	269 - 381	1,090	326	305 - 347
Lung Cancer									
Total	64	45	34 - 56	262	52	46 - 58	3,682	50	49 - 52
White, Non-Hispanic	42	47	33 - 62	231	53	46 - 60	3,338	51	49 - 53
Black, Non-Hispanic	11	45	18 - 71	14	50	23 - 76	138	44	36 - 51
Hispanic	10	37	13 - 60	13	31	13 - 49	78	30	23 - 37
Cerebrovascular Disease									
Total	401	268	242 - 294	1,324	244	231 - 258	17,180	229	225 - 232
White, Non-Hispanic	209	206	177 - 235	1,050	218	205 - 232	14,629	216	213 - 220
Black, Non-Hispanic	86	346	272 - 420	98	351	281 - 421	1,035	346	324 - 367
Hispanic	98	437	343 - 531	149	443	366 - 521	769	272	251 - 293
Major Cardiovascular Disease									
Total	2,295	1550	1487 - 1612	7,649	1432	1401 - 1464	105,069	1401	1393 - 1409
White, Non-Hispanic	1,161	1170	1101 - 1238	5,967	1261	1229 - 1293	89,914	1335	1327 - 1344
Black, Non-Hispanic	553	2147	1972 - 2321	625	2163	1997 - 2328	6,329	2083	2032 - 2134
Hispanic	526	2329	2121 - 2538	887	2546	2371 - 2720	4,533	1596	547 - 1645
Mental Disorders									
Total	2,765	1820	1753 - 1888	6,593	1421	1387 - 1455	53,395	786	780 - 793
White, Non-Hispanic	1,159	1667	1570 - 1764	4,151	1233	1195 - 1271	41,894	768	760 - 775
Black, Non-Hispanic	444	1386	1257 - 1516	523	1418	1296 - 1540	3,563	878	849 - 908
Hispanic	1,069	2387	2236 - 2538	1,726	2313	2196 - 2431	4,660	860	833 - 887

	Springfield			Hampden County			Massachusetts		
	Count	Rate per 100,000		Count	Rate per 100,000		Count	Rate per 100,000	
		Rate	95% CI*		Rate	95% CI*		Rate	95% CI*
Asthma									
Total	3,253	2123	2050 - 2196	6,965	1472	1437 - 1507	64,572	938	931 - 945
White, Non-Hispanic	898	1200	1119 - 1281	3,433	946	914 - 978	45,981	803	796 - 811
Black, Non-Hispanic	556	1770	1622 - 1918	653	1819	1679 - 1960	6,916	1789	1745 - 1832
Hispanic	1,732	4435	4204 - 4666	2,728	4350	4167 - 4533	8,478	1809	1765 - 1852
COPD									
Total	4,977	3297	3207 - 3387	13,230	2662	2617 - 2707	151,342	2101	2090 - 2111
White, Non-Hispanic	2,057	2419	2312 - 2525	8,836	2122	2077 - 2166	125,974	1997	1986 - 2008
Black, Non-Hispanic	817	2786	2596 - 2976	959	2898	2715 - 3080	9,771	2770	2714 - 2826
Hispanic	2,003	5704	5430 - 5977	3,214	5816	5594 - 6038	10,602	2645	2589 - 2701

Source: MDPH, MassCHIP, Massachusetts Hospitalization Discharge Dataset, 2009

Appendix C: Unadjusted Hospitalization Rates, 2012

	Springfield		Hampden County		Massachusetts	
Hospitalization Category	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000
Cancer	412	270	1,558	336	27,404	413
Lung Cancer	54	35	220	47	3,448	52
Cerebrovascular disease	391	256	1,347	290	17,423	263
Major Cardiovascular Disease	2,218	1,453	7,176	1,547	102,030	1,539
Mental Disorders	3,156	2,068	7,517	1,621	59,424	896
Respiratory Diseases	1,798	1,178	5,813	1,253	76,740	1,158
Asthma	351	230	914	197	10,661	161
COPD	702	460	2,281	492	27,791	419

Source: Massachusetts Hospitalization Discharge Dataset, 2012

Appendix D: Community Forum and Survey Results

A community forum was held in each of the 3 potential host communities. The Palmer and Springfield forums were held in Spring 2013 and were used to inform the selection of prioritized pathways during the Scoping Phase. Despite best efforts, the West Springfield forum could not be held until August 2013. Input from the W. Springfield community forum was used to help better understand potential impacts and to ground truth our pathway diagrams.

Below are the top impacts identified through the community survey and through the Springfield and Palmer community forums. Following is a summary of the findings from the West Springfield community forum.

Forum and Survey Input used to Inform Scoping

Springfield

Online Survey (n=66)

1. Jobs/employment/income
2. Crime & safety
3. Problem gambling
4. Traffic
5. Family health

Community Forum (n=15)

1. Problem gambling and addiction
2. Crime and safety
3. Increased leisure (improved QOL)(riverfront)
4. Jobs/employment
5. Improved public service/safety capacity (schools, police)

<i>Springfield</i>	Online Survey		Community Forum	
	<i>Top 5</i>	<i>Rank</i>	<i>Top 5</i>	<i>Rank</i>
jobs/employment/income	x	1	x	4
crime & safety	x	2	x	2
problem gambling	x	3	x	1
traffic	x	4		
family health	x	5		
increased leisure (improved QOL)			x	3
improved public service/safety capacity			x	5

Palmer

Online Survey (n=23)

1. Crime and safety
2. Traffic
3. Problem gambling
4. Public service/safety capacity
5. Family health

Community Forum (n=13)

1. Traffic
2. Public safety/service capacity
3. Jobs/employment
4. Family health
5. Town Character/QOL

<i>Palmer</i>	Online Survey		Community Forum	
	<i>Top 5</i>	<i>Rank</i>	<i>Top 5</i>	<i>Rank</i>
crime & safety	x	1		
traffic	x	2	x	1
problem gambling	x	3		
public service/safety capacity	x	4	x	2
family health	x	5	x	4
jobs/employment			x	3
town character/QOL			x	5

W. Springfield

Online Survey (n=17)

1. Traffic
2. Crime and safety
3. Problem gambling
4. Public safety/service capacity
5. Jobs/employment

Forum Input used to Inform Assessment

W. Springfield Community Forum Summary

(11 participants)

Potential casino impacts on W. Springfield residents that were discussed:

- Housing (property value)
- Crime (drugs, prostitution)
- Traffic (pollution)
- Other environmental impacts
 - Indoor air quality
 - Indoor noise/overstimulation and impact on individuals
- Impacts on utilities, water, and other infrastructure
- Impacts on family cohesion
- Other potential health effects on casino visitors
- Effect on young people

Ground Truthing Simplified Pathway Diagrams

Participants generally felt that the prioritized pathway diagrams reflected the top impacts that they anticipated. They did not disagree with the pathways included in the WMCHIA, though they did provide additional areas of concern.

Appendix E: Stakeholder Organizations Interviewed

Organization
Arise for Social Justice
Behavioral Health Network
Citizens for Jobs & Growth in Palmer
City of West Springfield, Health Department
City of West Springfield, Town Council
City of West Springfield, Mayor's Office
Develop Springfield
The Gandara Center
Greater Springfield Chamber of Commerce
Health New England
Jewish Family Services
Lutheran Social Services, West Springfield
Western MA Casino Task Force
New North Citizens Council
North Brookfield Savings Bank
Palmer, Council on Aging
Partners for Community, Springfield
Pioneer Valley Planning Commission
Pioneer Valley Transit Authority
Quabog Hills Chamber of Commerce, Palmer
Quabog Valley Against Casinos, Palmer
Regional Employment Board of Hampden County
Representative Michael Finn's Office
Senator Jim Welch's Office
Springfield Technical Community College
Town of Palmer, Administrator's Office
Town of Palmer, Community Development Dept.
Town of Palmer, Town Council
West Springfield Chapter of the Council of Churches
Western MA Casino Careers Training Institute
Western Massachusetts Refugee and Immigrant Consortium

Appendix F: Required Education and Wages for Anticipated Resort Casino Job Positions

Category	Position	SOC Code	Education	Mean Hourly Rate	Mean Annual Wage
Casino Operation	Slot Service Attendants	39-1012	HS/GED	\$ 16.44	\$ 34,200.00
Casino Operation	Slot Technical	49-2097	HS/GED	\$ 17.76	\$ 36,940.00
Casino Operation	Slot Supervisory	39-1021	HS/GED	\$ 18.41	\$ 38,300.00
Casino Operation	Slot Shift Manager	11-9071	Some College/ Workforce Training	\$ 34.32	\$ 71,390.00
Casino Operation	Exec Director Slot Operations	11-1021	Workforce Training	\$ 55.22	\$ 114,850.00
Casino Operation	Dealers	39-3011	HS/GED	\$ 10.77	\$ 22,410.00
Casino Operation	Tables Supervisory	39-1011	Workforce Training	\$ 23.89	\$ 49,700.00
Casino Operation	Table Games Shift Manager	11-9071	HS/GED	\$ 34.32	\$ 71,390.00
Casino Operation	Executive Director Table Games	11-1021	HS/GED	\$ 55.22	\$ 114,850.00
Casino Operation	Poker Dealers	39-3011	HS/GED	\$ 10.77	\$ 22,410.00
Casino Operation	Poker Supervisory	39-1011	HS/GED	\$ 23.89	\$ 49,700.00
Casino Operation	Poker Shift Manager	11-9071	HS/GED	\$ 34.32	\$ 71,390.00
Casino Operation	Poker Director	11-1021	Workforce Training	\$ 55.22	\$ 114,850.00
Casino Operation	Casino Cashiering	39-3019	HS/GED	\$ 12.74	\$ 26,500.00
Casino Operation	Casino Credit Clerks	39-3019	HS/GED	\$ 12.74	\$ 26,500.00
Casino Operation	Pit Clerks	39-3019	HS/GED	\$ 12.74	\$ 26,500.00
Casino Operation	Cashiering Supervisors	39-1011	HS/GED	\$ 23.89	\$ 49,700.00
Casino Operation	Casino Cashiering Shift Manager	11-9071	HS/GED	\$ 34.32	\$ 71,390.00
Casino Operation	Count Room	39-3019	Workforce Training	\$ 12.74	\$ 26,500.00
Casino Operation	Count Room Supervisory	39-1011	Workforce Training	\$ 23.89	\$ 49,700.00
Casino Operation	Director Casino Accounting	11-1021	College	\$ 55.22	\$ 114,850.00
Casino Operation	Surveillance	33-9031	HS/GED	\$ 15.40	\$ 32,040.00
Casino Operation	Surveillance Supervisor	39-1011	Workforce Training	\$ 23.89	\$ 49,700.00
Casino Operation	Surveillance Shift Manager	11-9071	Workforce Training	\$ 34.32	\$ 71,390.00
Casino Operation	Surveillance Director	11-1021	College	\$ 55.22	\$ 114,850.00

Category	Position	SOC Code	Education	Mean Hourly Rate	Mean Annual Wage
Hotel Operation	Housekeepers	37-2012	HS/GED	\$ 13.03	\$ 27,110.00
Hotel Operation	Housekeeping Supervisory	37-1011	HS/GED	\$ 22.11	\$ 45,990.00
Hotel Operation	Public Areas	37-2011	HS/GED	\$ 14.69	\$ 30,550.00
Hotel Operation	Public Areas Supervisory	37-1011	HS/GED	\$ 22.11	\$ 45,990.00
Hotel Operation	Housekeeping/Public Areas Shift Managers	11-9081	HS/GED	\$ 33.13	\$ 68,900.00
Hotel Operation	Director Housekeeping Public Areas	11-9081	Workforce Training	\$ 33.13	\$ 68,900.00
Hotel Operation	Director Hotel Operations	11-9081	College	\$ 33.13	\$ 68,900.00
Hotel Operation	Front Desk	43-4081	HS/GED	\$ 12.63	\$ 26,280.00
Hotel Operation	Front Desk Supervisory	39-1021	HS/GED	\$ 20.87	\$ 43,400.00
Hotel Operation	Bell Services	39-6011	HS/GED	\$ 12.14	\$ 25,240.00
Hotel Operation	Valet Attendant	53-6021	HS/GED	\$ 12.07	\$ 25,100.00
Hotel Operation	Valet Cashier	41-2011	HS/GED	\$ 10.35	\$ 21,520.00
Hotel Operation	Valet Supervisor	39-1021	HS/GED	\$ 20.87	\$ 43,400.00
Hotel Operation	PBX Operator	43-2021	HS/GED	\$ 19.39	\$ 40,330.00
Hotel Operation	PBX Supervisor	39-1021	College	\$ 20.87	\$ 43,400.00
Hotel Operation	Message Therapists	29-1123	Workforce Training	\$ 38.27	\$ 79,600.00
Hotel Operation	Spa Attendant	39-9099	HS/GED	\$ 14.07	\$ 29,260.00
Hotel Operation	Spa Manager	11-9111	Workforce Training	\$ 33.13	\$ 68,900.00
Hotel Operation	Spa Supervisor	39-1021	College	\$ 20.87	\$ 43,400.00
Hotel Operation	Health Club Attendant	39-9032	HS/GED	\$ 12.25	\$ 25,480.00
Hotel Operation	Health Club Supervisor	39-1021	Workforce Training	\$ 20.87	\$ 43,400.00
Hotel Operation	Pool Supervisor	33-1099	College	\$ 23.73	\$ 49,360.00
Hotel Operation	Life Guard	33-9092	HS/GED	\$ 10.99	\$ 22,850.00
Hotel Operation	Grounds Keeper	37-3011	Workforce Training	\$ 15.81	\$ 32,880.00
Hotel Operation	General Maintenance	47-2061	HS/GED	\$ 23.26	\$ 48,380.00
Hotel Operation	Painter	47-2141	HS/GED	\$ 20.93	\$ 43,540.00
Hotel Operation	Electrician	47-2111	HS/GED	\$ 29.87	\$ 62,140.00

Category	Position	SOC Code	Education	Mean Hourly Rate	Mean Annual Wage
Hotel Operation	Carpenter	47-2031	HS/GED	\$ 26.85	\$ 55,850.00
Hotel Operation	Plumber	47-2152	HS/GED	\$ 32.18	\$ 66,940.00
Hotel Operation	HVAC	49-9021	HS/GED	\$ 27.02	\$ 56,190.00
Hotel Operation	Facilities Supervisory	11-9021	Workforce Training	\$ 48.68	\$ 101,250.00
Hotel Operation	Facilities Shift Manager	11-9021	College	\$ 48.68	\$ 101,250.00
Hotel Operation	Executive Director Facilities	11-9041	College	\$ 70.25	\$ 146,110.00
Hotel Operation	Security	33-9032	Workforce Training	\$ 14.74	\$ 30,660.00
Hotel Operation	Security Supervisor	33-1099	College	\$ 23.73	\$ 49,360.00
Hotel Operation	Security Shift Manager	11-9071	College	\$ 34.32	\$ 71,390.00
Hotel Operation	Executive Director Security	11-1021	College	\$ 60.70	\$ 126,270.00
Hotel Operation	Convention Services	53-7062	Workforce Training	\$ 14.65	\$ 13.15
Hotel Operation	Retail Manager	11-9081	College	\$ 33.13	\$ 68,900.00
Hotel Operation	Retail	41-2031	HS/GED	\$ 12.59	\$ 26,190.00
Hotel Operation	Retail Supervisors	41-1011	Workforce Training	\$ 21.61	\$ 44,950.00
Food & Beverage	Bartender	35-3011	HS/GED	\$ 12.74	\$ 26,490.00
Food & Beverage	Bar Porter	35-9011	HS/GED	\$ 11.15	\$ 23,200.00
Food & Beverage	Beverage Server	35-3041	HS/GED	\$ 11.08	\$ 23,040.00
Food & Beverage	Food Server	35-3031	HS/GED	\$ 13.13	\$ 27,310.00
Food & Beverage	Bus Person	35-9011	HS/GED	\$ 11.15	\$ 23,200.00
Food & Beverage	Greeter	35-9031	HS/GED	\$ 10.96	\$ 22,800.00
Food & Beverage	Stocker	35-0000	HS/GED	\$ 12.24	\$ 25,260.00
Food & Beverage	F&B Supervisor	35-1012	Workforce Training	\$ 17.84	\$ 37,110.00
Food & Beverage	F&B Shift Managers	11-9051	College	\$ 27.54	\$ 57,100.00
Food & Beverage	Director Beverage	11-9199	College	\$ 52.44	\$ 109,080.00
Food & Beverage	Exec Director Food and Beverage	11-9021	College	\$ 48.68	\$ 101,250.00
Food & Beverage	Banquet Beverage	35-3011	HS/GED	\$ 12.74	\$ 26,490.00
Food & Beverage	Banquet Server	35-3031	HS/GED	\$ 13.13	\$ 27,310.00

Category	Position	SOC Code	Education	Mean Hourly Rate	Mean Annual Wage
Food & Beverage	Banquet Manager	35-1012	Workforce Training	\$ 17.84	\$ 37,110.00
Food & Beverage	Director Catering/Convention Services	11-9199	College	\$ 52.44	\$ 109,080.00
Food & Beverage	Room Service Food Server	35-3041	HS/GED	\$ 11.08	\$ 23,040.00
Food & Beverage	Room Service Attendant	35-9011	HS/GED	\$ 11.15	\$ 23,200.00
Food & Beverage	Room Service Order Taker	41-2011	HS/GED	\$ 10.35	\$ 21,520.00
Food & Beverage	Cafeteria	35-9011	HS/GED	\$ 11.15	\$ 23,200.00
Food & Beverage	Uniforms Attendant	43-5071	HS/GED	\$ 16.63	\$ 34,590.00
Food & Beverage	Room Service Supervisor	35-1012	HS/GED	\$ 17.84	\$ 37,110.00
Food & Beverage	Butler	35-3031	HS/GED	\$ 13.13	\$ 27,310.00
Food & Beverage	Director Room Service	11-9199	Workforce Training	\$ 52.44	\$ 109,080.00
Food & Beverage	Cooks	35-2014	HS/GED	\$ 13.37	\$ 27,820.00
Food & Beverage	Sous Chef	35-1011	Workforce Training	\$ 26.15	\$ 54,400.00
Food & Beverage	Stewards	35-9021	Workforce Training	\$ 10.29	\$ 21,400.00
Food & Beverage	Steward Supervisor	35-1012	College	\$ 17.84	\$ 37,110.00
Food & Beverage	Executive Chef	11-9051	College	\$ 27.45	\$ 57,100.00
Marketing Dept	Box Office Supervisor	39-1021	Workforce Training	\$ 20.87	\$ 43,400.00
Marketing Dept	Box Office	41-2031	HS/GED	\$ 12.59	\$ 26,190.00
Marketing Dept	Stage Managers	27-2012	Workforce Training	\$ 34.37	\$ 71,490.00
Marketing Dept	Promotions Booth	41-9041	HS/GED	\$ 16.67	\$ 34,680.00
Marketing Dept	Promotions Supervisor	39-1021	Workforce Training	\$ 20.87	\$ 43,400.00
Marketing Dept	Telemarketing/Reservations	41-9041	Workforce Training	\$ 16.64	\$ 34,680.00
Marketing Dept	Bus Greeter	41-9041	HS/GED	\$ 16.64	\$ 34,680.00
Marketing Dept	Hosts	41-9099	HS/GED	\$ 22.24	\$ 46,260.00
Marketing Dept	Player Development Execs	11-2022	Workforce Training	\$ 66.83	\$ 139,000.00
Marketing Dept	Executive Director Player Development	11-2022	College	\$ 66.83	\$ 139,000.00
Marketing Dept	Director Advertising	11-2021	College	\$ 66.34	\$ 137,980.00
Marketing Dept	Director Public Relations	11-2031	College	\$ 58.15	\$ 120,950.00

Category	Position	SOC Code	Education	Mean Hourly Rate	Mean Annual Wage
Marketing Dept	Director Database Marketing	11-2021	College	\$ 66.34	\$ 137,980.00
Marketing Dept	Director Marketing Operations	11-2021	College	\$ 66.34	\$ 137,980.00
Accounting Dept	Hotel/F&B Cashier	41-2011	HS/GED	\$ 10.35	\$ 21,520.00
Accounting Dept	Accountants	13-2011	College	\$ 36.43	\$ 75,780.00
Accounting Dept	Accounting Clerks	43-3031	Workforce Training	\$ 20.01	\$ 41,630.00
Accounting Dept	Casino Accounting	43-3031	College	\$ 20.01	\$ 41,360.00
Accounting Dept	Casino Controller	11-3031	College	\$ 62.05	\$ 129,070.00
Accounting Dept	Director Financial Analysis	11-3031	College	\$ 62.05	\$ 129,070.00
Accounting Dept	Director Financial Reporting	11-3031	College	\$ 62.05	\$ 129,070.00
Accounting Dept	Controller	11-3031	College	\$ 62.05	\$ 129,070.00
Accounting Dept	Director Hotel Accounting	11-3031	College	\$ 62.05	\$ 129,070.00
Accounting Dept	Purchasing Manager	11-3061	College	\$ 50.67	\$ 105,400.00
Accounting Dept	Purchasing Agent	43-3061	College	\$ 21.71	\$ 45,150.00
Accounting Dept	Warehouse Supervisor	43-1011	College	\$ 28.32	\$ 58,910.00
Accounting Dept	Warehouse Attendant	43-5071	HS/GED	\$ 16.63	\$ 34,590.00
Accounting Dept	Director IT	11-3021	College	\$ 66.88	\$ 139,120.00
Accounting Dept	Information Technology Techs and Programmers	15-1141	College	\$ 40.13	\$ 83,480.00
Accounting Dept	Computer Operator	43-9011	Workforce Training	\$ 20.69	\$ 43,030.00
Accounting Dept	Internal Audit	13-2011	College	\$ 36.43	\$ 75,780.00
Accounting Dept	Executive Director Internal Audit	11-3031	College	\$ 62.05	\$ 129,070.00
Casino Administration	Human Resources Supervisors/Professionals	13-1071	College	\$ 31.05	\$ 64,580.00
Casino Administration	Executive Director Human Resources	11-3011	College	\$ 42.63	\$ 88,660.00
Casino Administration	Director Employee Relations	11-3121	College	\$ 52.69	\$ 109,590.00
Casino Administration	Director Personnel	11-3121	College	\$ 52.69	\$ 109,590.00
Casino Administration	Human Resources Administrative	43-4161	College	\$ 22.37	\$ 46,530.00
Casino Administration	Executive Directors	11-3011	College	\$ 47.48	\$ 98,760.00

Category	Position	SOC Code	Education	Mean Hourly Rate	Mean Annual Wage
Casino Administration	Administrative Professionals	43-6014	College	\$ 19.61	\$ 40,780.00
Casino Administration	Vice Presidents	11-1011	College	\$ 94.29	\$ 196,130.00

Sources: Position Categories, Titles and Education Data- MA Casino Careers Training Institute; SOC Codes - Spectrum Gaming 2008 Report; if SOC code was not available, code for similar position was used; Wage data - U.S. Bureau of Labor Statistics 2011; casino positions use national data and all other use MA data

Appendix G: Springfield Average Daily Traffic (ADT) Counts for Likely Casino Access Routes

Location	Friday ADT	Saturday ADT
West Columbus Avenue, between Bliss and Howard	10,213	5,197
East Columbus Avenue, between Bliss and Howard	10,962	5,890
Main Street, north of Howard	13,456	10,324
State Street, between East Columbus and Main	10,937	7,684
Union Street, between East Columbus and Main	10,755	6,857

Source: *Traffic Impact and Access Study - MGM Springfield, TEC, INC. December 17, 2012*

Appendix H: EPA National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		primary & secondary	Rolling 3 month average	0.15 $\mu\text{g}/\text{m}^3$ ⁽¹⁾	Not to be exceeded
Nitrogen Dioxide (NO ₂)		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary & secondary	Annual	53 ppb	Annual mean
Ozone		primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution	PM _{2.5}	primary	Annual	12 $\mu\text{g}/\text{m}^3$	Annual mean, averaged over 3 years
		secondary	Annual	15 $\mu\text{g}/\text{m}^3$	Annual mean, averaged over 3 years
		primary and secondary	24-hour	35 $\mu\text{g}/\text{m}^3$	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24-hour	150 $\mu\text{g}/\text{m}^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)		primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: U.S. EPA <http://www.epa.gov/air/criteria.html>, accessed 7/1/13

Appendix I: Motor Vehicle Collisions by Type and Severity- Springfield, 2011

Geography	Type of Vehicle Collision				Collision Severity									
	Vehicle Only	Pedacyclist	Pedestrian	Other Non-Motorist	Injury or Fatality				Property Damage Only		Not Reported		Unknown	
					Fatal		Not Fatal							
					count	%	count	%	count	%	count	%	count	%
Springfield	4,414	65	157	7	8	0.2%	1,747	37.6%	2,616	56.3%	196	4.2%	76	1.6%

Source: Massachusetts Department of Transportation, 2011

Appendix J: Regional Emissions Estimate Procedure

Casino Trip Generation Scenarios:

Low = 15,000 trips/day

Medium= 22,500 trips/day

High= 30,000 trips/day

Trip Type: casino patron, retail patron, employee

Pollutant Types: VOC, CO, NO_x, CO₂, PM_{2.5}, PM₁₀

Roadway Type: freeway, local

Assumptions:

- Average speed: freeway= 65 m.p.h., local roadways=30 m.p.h.
- Percent roadway type travel by trip type
 - Casino patrons: 90% freeway, 10% local roadway
 - Retail patrons: 80% freeway, 20% local roadway
 - Employees: 10% freeway, 90% local roadway
- Average VMT by trip type was estimated as follows
 - Casino Patron – estimated to be 50 miles¹
 - Retail Patron – estimated to be 10 miles¹
 - Employment – estimated to be 15 miles²
- A percentage of trips will involve patrons that are diverted from other casino or retail trips, and subsequently, would already have been on the road. To account for this, the following adjustments were made
 - VMT of casino patrons reduced by 50%
 - VMT of retail patrons reduced by 35%
 - VMT of employees not reduced
- Number of employees using vehicles: The initial estimate was 3,000 based on casino estimates. It was estimated that 15% would be using environmentally friendly methods of transportation,² leaving 2,550 employees that would be utilizing their cars.

Procedure:

- Proportion of casino trips by trip type was estimated using weekday trip data from the Mohegan Sun and MGM trip generation tables included in their traffic reports.^{3,4} The Hard Rock tables were not publicly released and thus not available for inclusion. Only retail, casino and Cineplex trip data was used as it was believed that the other trip types would vary between casinos (e.g. water park). The total trips were used (i.e. before numbers were reduced due to drive-by trips, etc.).
 - For each casino, total number of trips was broken into casino, retail and employee trips based on procedure and assumptions above. Employee trips were calculated by multiplying the number of employees by 2, which totaled 5,100. The 5,100 employee trips were divided in half and reduced from the casino and retail patron trip estimates. Proportions for each type of trip were then calculated. Proportions were then averaged across the two casino estimates to come up with an average proportion of trips by casino patron, retail patron and employee. See table below.

¹Buckhurst Fish & Jacquemart Inc. Bridgeport Casino Traffic Impacts on the South Western Region of CT. 2001. Prepared for the Southwestern Regional Planning Agency. <http://swrpa.org/?Transport=80>.

² Pioneer Valley Planning Commission. State of the People: for the Pioneer Valley. 2013.

³ Beals and Thomas, Inc. Report of Impacts on Nearby Communities, Mohegan Sun Massachusetts: Off of Thorndike and Breckenridge Streets Palmer, Massachusetts. Prepared for Mohegan Tribal Gaming Authority. 2013.

⁴ TEC, Inc. Traffic Impact and Access Study: MGM Springfield. Prepared for MGM Resorts International Global Gaming Development, LLC. 2012

Proportion of Trips by Type of Trip

	Total Patron Casino Trips	Total Retail Patron Trips (+ Cineplex)	Employees (2550) Trips	Total	Proportion Casino	Proportion Retail	Proportion Employees
MS	11006	12084	5100	28190	0.3904221	0.42866265	0.180915218
MGM	23062	6854	5100	35016	0.6586132	0.19573909	0.145647704
Average	--	--	--	--	0.5245177	0.31220087	0.163281461

- For each trip generation scenario, number of trips by type of trip was obtained by multiplying total number of trips by proportion of type of trip. See below for number of trips by trip type and an example calculation.

Number of Trips by Trip Type

Scenario	Trips per day	Casino	Retail	Employee
High	15735.53011	9366.02606	4898.4438	15735.53011
Medium	11801.64759	7024.51954	3673.8329	11801.64759
Low	7867.765057	4683.01303	2449.2219	7867.765057

Example calculation

High Scenario: Casino Patron Trips=30,000*0.545177=15,736

- Vehicle VMT by type of roadway and trip type was calculated for each scenario by multiplying the following: the number of trips by trip type, the proportion of trips traveled by each type of roadway for each trip type, average VMT traveled for each type of trip. This amount was then multiplied by the percent of new trips for that trip type, i.e. those that were not diverted (see assumptions above). See below for VMT by type of roadway and trip type and an example calculation.

VMT by Type of Roadway and Trip Type

Scenario	Freeway VMT			Local Street VMT		
	Casino	Retail	Employee	Casino	Retail	Employee
High	354,049.428	48,703.33549	7,347.665747	78,677.6506	18,732.052	66,128.9917
Medium	265,537.071	36,527.50162	5,510.74931	59,008.2379	14,049.039	49,596.7438
Low	177,024.714	24,351.66774	3,673.832873	39,338.8253	9,366.0261	33,064.4959

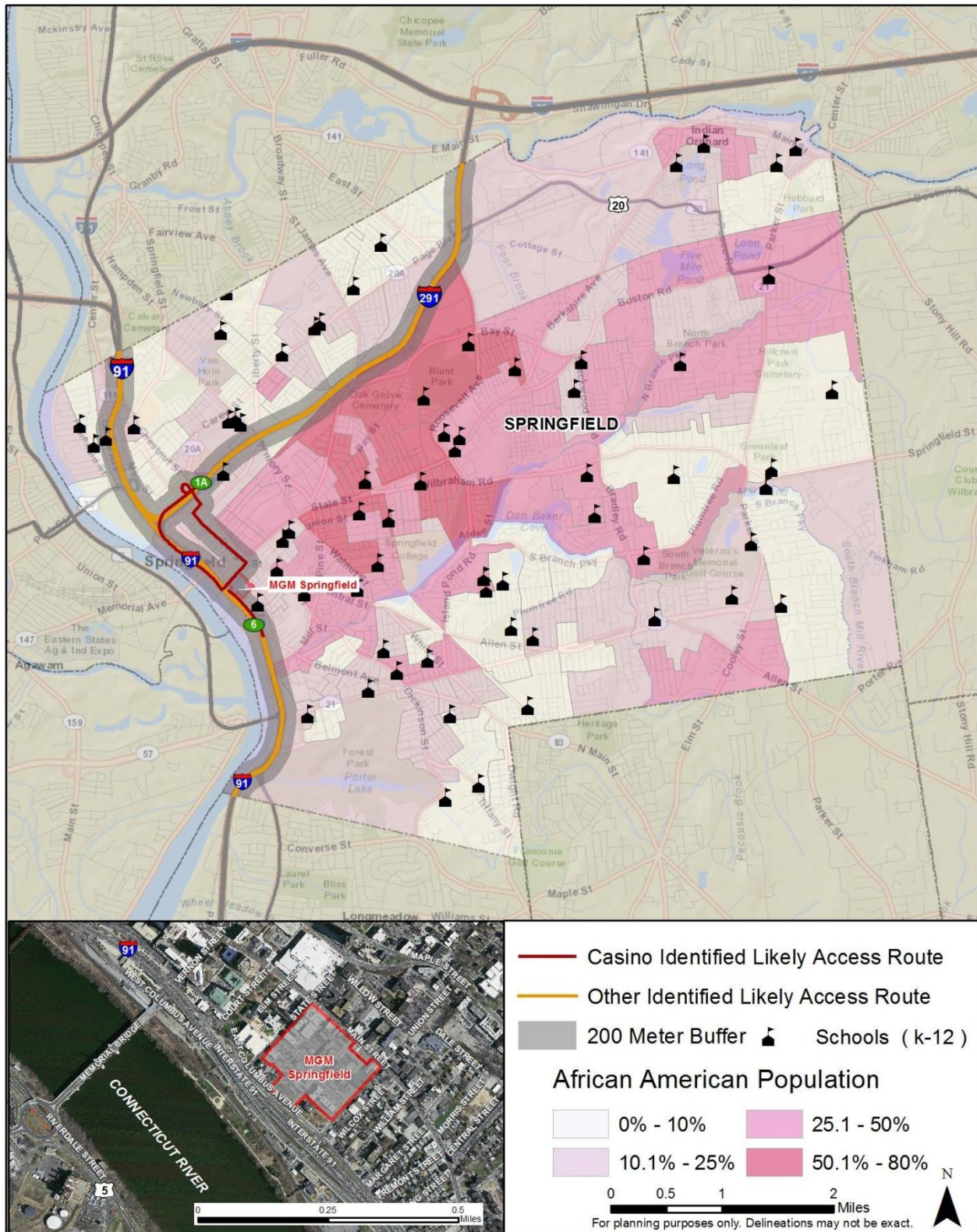
Example calculation

High Scenario: Casino Freeway VMT for casino patrons=15,735.530*50*.9*.5=354,049.428

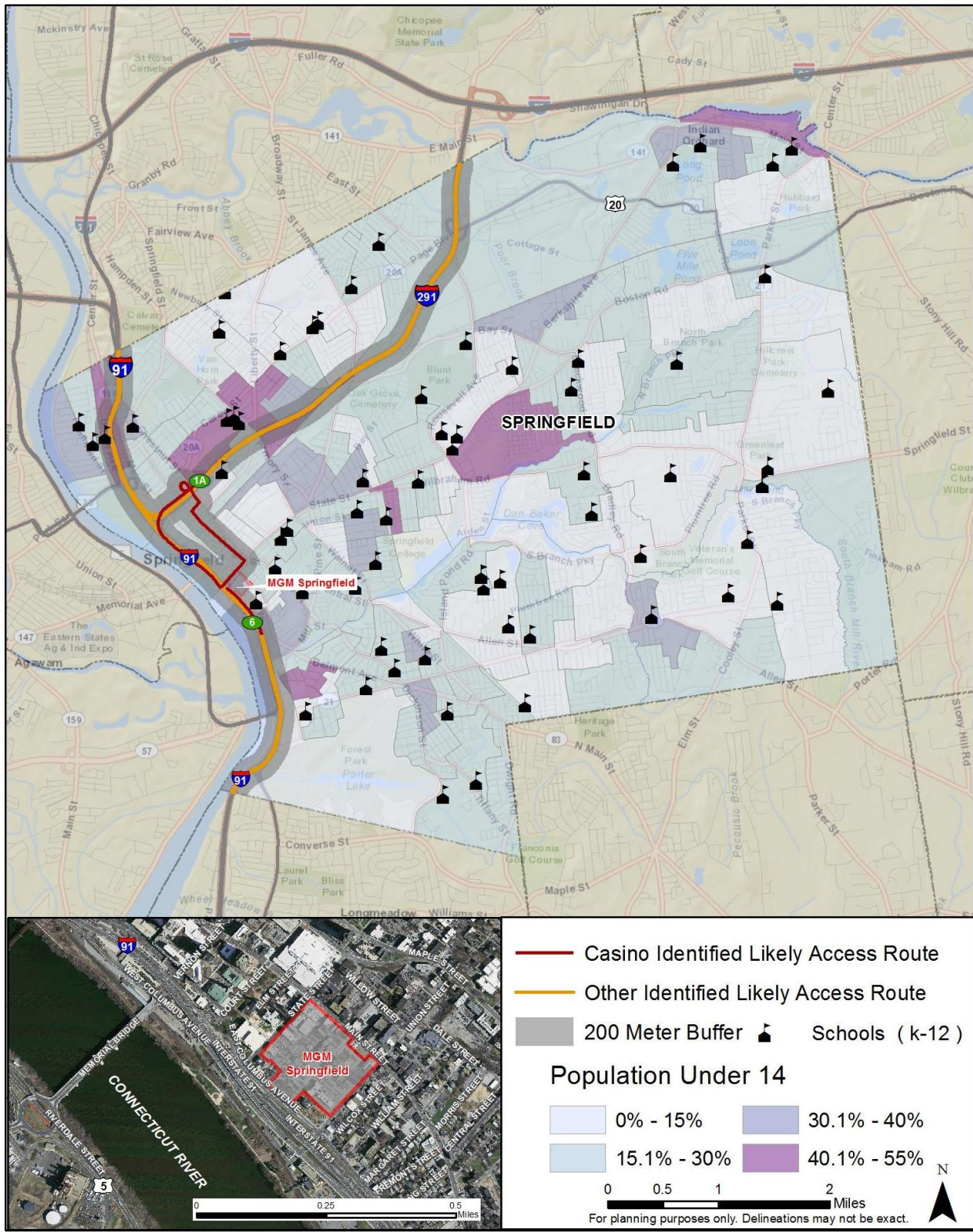
- Emissions by type of trip and roadway was calculated for each scenario by multiplying the VMT by type of roadway and trip type by the EPA MOBILE 6.2 emissions factor for each pollutant type. The pollutant emissions were then summed across all sources to obtain total emissions by pollutant type. These total emissions were then adjusted using a seasonal adjustment factor to account for differences during seasons. See below for estimated emissions by pollutant source.

High Scenario									
	Freeway (kg/day)			Local Street (kg/day)					
Pollutant	Casino	Retail	Employee	Casino	Retail	Employee	Total (kg/day)	Seasonal Adj. Factor	Adjusted Total (kg/day)
VOC	80	11	2	20	5	17	135	1	137
CO (summer)	1,667	229	35	271	64	228	2,493	1	2,540
CO (winter)	3,932	541	82	729	174	613	6,069	1	5,955
NO _x	231	32	5	34	8	28	337	1	344
CO ₂	200,031	27,516	4,151	44,451	10,583	37,362	324,095	1	324,095
PM _{2.5}	6	1	0	1	0	1	9	1	9
PM ₁₀	11	2	0	2	1	2	18	1	18
Medium Scenario									
	Freeway (kg/day)			Local Street (kg/day)					
Pollutant	Casino	Retail	Employee	Casino	Retail	Employee	Total (kg/day)	Seasonal Adj. Factor	Adjusted Total (kg/day)
VOC	60	8	1	15	4	13	101	1	103
CO (summer)	1,250	172	26	203	48	171	1,870	1	1,905
CO (winter)	2,949	406	61	547	130	460	4,552	1	4,466
NO _x	173	24	4	25	6	21	253	1	258
CO ₂	150,023	20,637	3,113	33,338	7,937	28,021	243,071	1	243,071
PM _{2.5}	4	1	0	1	0	1	7	1	7
PM ₁₀	8	1	0	2	0	2	13	1	13
Low Scenario									
	Freeway (kg/day)			Local Street (kg/day)					
Pollutant	Casino	Retail	Employee	Casino	Retail	Employee	Total (kg/day)	Seasonal Adj. Factor	Adjusted Total (kg/day)
VOC	40	5	1	10	2	9	67	1	69
CO (summer)	833	115	17	135	32	114	1,247	1	1,270
CO (winter)	1,966	270	41	364	87	306	3,035	1	2,978
NO _x	116	16	2	17	4	14	169	1	172
CO ₂	100,015	13,758	2,076	22,226	5,292	18,681	162,047	1	162,047
PM _{2.5}	3	0	0	1	0	1	5	1	5
PM ₁₀	5	1	0	1	0	1	9	1	9

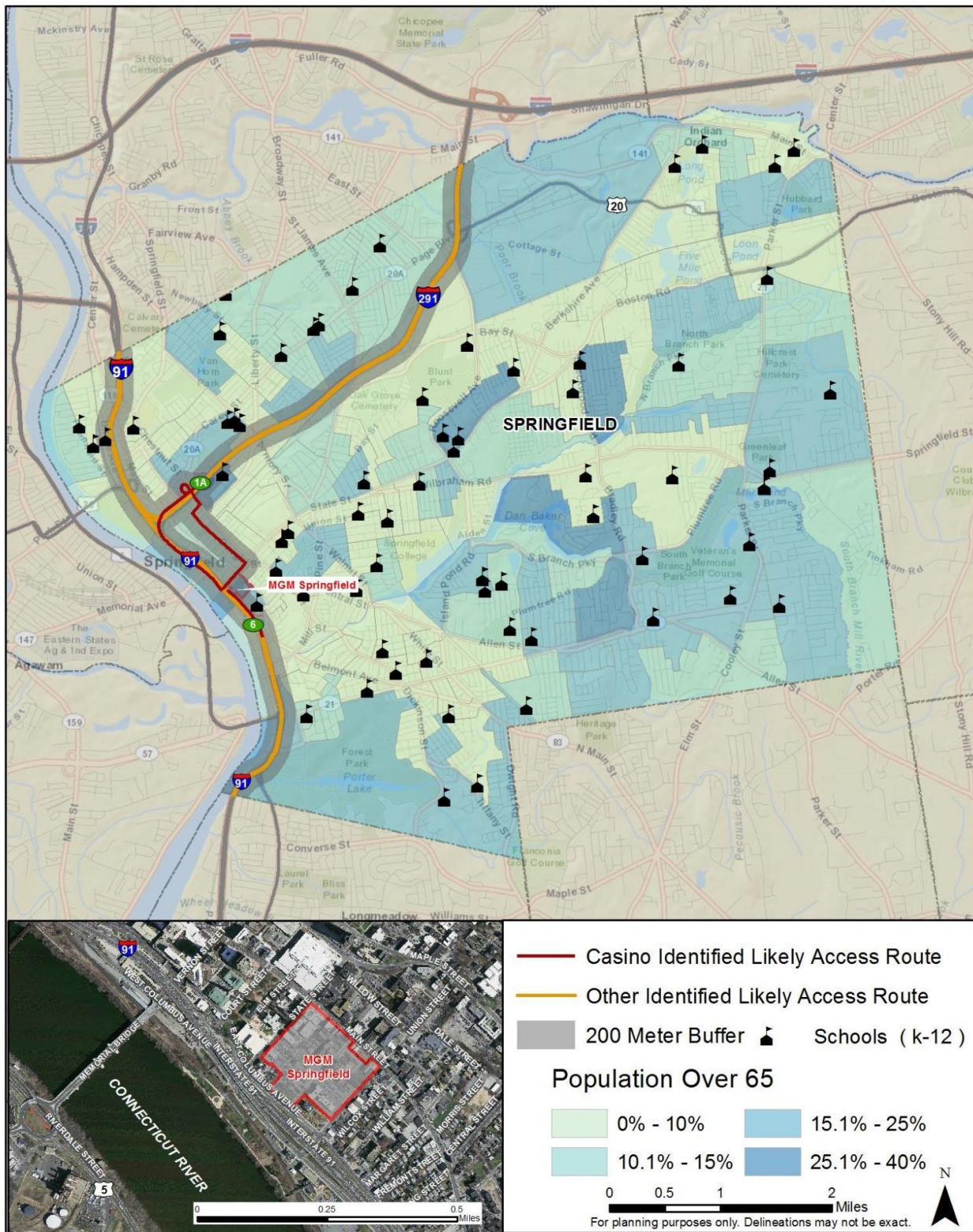
Appendix K: African-American Populations Residing within 200m of Likely Access Routes to Proposed Springfield Casino



Appendix L: Children Under Age 14 Residing within 200m of Likely Access Routes to Proposed Springfield Casino



Appendix M: Adults over Age 65 Residing within 200 meters of Likely Access Routes to Proposed Springfield Casino



Appendix N: Crime Rates by Type, 2009-2011

Geography	Year	Murder and non-negligent manslaughter		Forcible rape		Robbery		Aggravated assault		Burglary		Larceny- theft		Motor vehicle theft	
		Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000	Count	Rate per 100,000
Springfield	2009	16	10	116	76	581	378	1,216	792	2,068	1,347	4,615	3,006	835	544
Springfield	2010	16	10	129	84	587	380	1,358	880	2,660	1,724	4,015	2,602	872	565
Springfield	2011	20	13	31	20	532	345	998	648	2,499	1,623	4,072	2,644	794	516
Hampden County	2009	20	5	209	48	742	172	1,939	449	3,667	850	9,439	2,188	1,356	314
Hampden County	2010	22	5	220	48	816	180	2,250	496	4,684	1,032	9,869	2,175	1,519	335
Hampden County	2011	25	6	141	32	723	162	1,826	410	4,195	943	9,556	2,148	1,304	293
Massachusetts	2009	173	3	1,734	26	7,467	113	21,129	320	34,515	523	106,799	1,620	11,864	180
Massachusetts	2010	210	3	1,745	27	6,874	105	21,724	331	37,767	575	104,685	1,595	11,453	175
Massachusetts	2011	185	3	1,628	25	6,768	102	19,638	297	36,533	553	101,471	1,536	10,786	163

Source: FBI Uniform Crime Data Report, 2011