The Bond Advisory Committee believes a strong public teaching hospital and health system is essential to the quality of life and long-term economic vitality of our community. For more than 140 years, Maricopa Integrated Health System has served as our public safety net and trained thousands of medical professionals whom we depend upon today. Maricopa Integrated Health System touches virtually every corner of our County through its Arizona Burn Center, Arizona Children’s Center, Level 1 trauma center, acute and behavioral health hospitals, specialty services, family health centers, community health initiatives, and clinical training programs.

The Bond Advisory Committee supports the bold vision set forth by the organization to fulfill its mission. It creates a better model for patient care and medical education that improves access, quality, cost and outcomes for patients and increases the supply of future health professionals. Specifically, the vision plan allocates a greater share of system resources to grow primary care in underserved parts of the County and to deliver care cost-effectively. Second, the plan calls for the expansion of behavioral health capacity to meet the glaring need in the community for more mental health and substance abuse services. Third, the plan calls for training the next generation of physicians, nurses and allied health professionals in response to an ongoing critical shortage of clinicians in Arizona. In total, the goal is to deliver more care outside the walls of the hospital and in the community, and deploy new methods of clinical training that align accountability for that care with improved outcomes and reduced costs.

After an extensive research and public involvement process that focused squarely on community need, the Bond Advisory Committee has concluded that current healthcare facilities are insufficient for Maricopa Integrated Health System to meet its voter-mandated mission and 21st century public teaching hospital and health system vision. The Committee recommends the issuance of General Obligation Bonds in an amount not to exceed $935 million for financing of strategic capital projects along with seven key recommendations.

1. Grow medical education to address the critical shortage of medical professionals in Arizona.
2. Expand the outpatient health centers for primary care and training of medical professionals.
3. Increase behavioral health capacity to meet overwhelming demand for mental health services.
4. Replace and right-size the public teaching hospital to teach, train and care for the community.
5. Complete an economic impact study to demonstrate community return on investment.
6. Develop a bond proposal and a bond communication plan to secure funding.
7. Create a collaborative community stakeholder engagement plan and partnerships to benefit all.

The Bond Advisory Committee believes that these recommendations represent the needs of our community and provide guidelines for the long-term viability of Maricopa Integrated Health System while promoting fiscal responsibility and adherence to the voter-mandated mission of the organization.

Visit [www.mihsbondadvisory.org](http://www.mihsbondadvisory.org) for a copy of the Bond Advisory Committee Final Report and Recommendation.
Maricopa County Special Heath Care District
Bond Advisory Committee
Final Report and Recommendation
Approved February 12, 2014
## Final Report and Recommendation

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I. EXECUTIVE SUMMARY

The Maricopa County Special Health Care District Bond Advisory Committee (BAC) was formed by the Maricopa County Special Health Care District’s d.b.a. Maricopa Integrated Health System (MIHS) Board of Directors (BOD) under a specific Charter. The Charter states the BAC has the following purposes:

1. Review, prioritize and make recommendations to the Maricopa County Special Health Care District Board of Directors on proposed bond projects in support of the Maricopa Integrated Health System mission, vision, and community needs

2. Develop a bond proposal comprised of prioritized projects and make a recommendation to the District Board regarding the issuance of bonds or any other viable financing vehicle to fund the prioritized capital projects, including the consideration of a bond election

3. Obtain public comment, community and stakeholder input, and expert opinion into bond project and proposal deliberations

The BAC has accountability to the MIHS BOD for its final recommendations; however it operates independently from the BOD for the purposes of its bond review process. The BAC’s first task was to select an independent consultant to facilitate the committee process. Following a request for proposals, the BAC reviewed applications, interviewed qualified candidates, and selected Kurt Salmon U.S., Inc. from the pool of applicant finalists. Kurt Salmon consultants report directly to the Chairman of the BAC. The BAC operates with input from the MIHS executive leadership, strategic recommendations from the BOD, and support from the BOD’s strategic planning consultants Navvis Healthways.

In order to meet the obligations of its Charter, the BAC conducted a series of public meetings from March 2013 to February 2014, to take a comprehensive look at the information needed to offer its recommendations to the BOD. During this process, a parallel track of work was led by MIHS Leadership and the BOD to formulate the vision and strategic direction for the organization. This effort, facilitated by Navvis Healthways, was intricately linked to the process of the BAC as it provided the strategic foundation, inputs and reasoning behind the ultimate recommendations for capital needed to support the mission and vision of the community’s only public teaching hospital and health system.

The work of the BAC was informed by the strategic and facility plans, and based on the following mission, vision, community value, facility assessment, and investment recommendation.

1. **MISSION:** The foundational mission of the community’s only public teaching hospital and health system provides an essential service to those who live and work in Maricopa County. This includes:
   - Teaching and training a next generation of physicians, nurses and allied health professionals in response to an ongoing shortage of clinicians in Maricopa County and statewide;
     - Currently MIHS trains more than 400 resident physicians per year, many of whom remain in the local community, making it the largest contributor to graduate medical education in the Metropolitan Phoenix area.
ii. Additionally, MIHS provides over 3,000 clinical rotations each year for allopathic and osteopathic medical students, nursing students, allied health professionals, and military readiness experiences for healthcare practitioners prior to deployment.

- **Serving as a safety net provider** to fill critical gaps in care for underserved populations and the under and uninsured individuals and families.
  i. Providing services for the medically underserved is core to the mission and represents one third of the total patients served at MIHS.
  ii. Currently, uncompensated care as a percentage of gross revenues at MIHS is upwards of 30%, nearly four times greater than the 7% on average experienced at Arizona hospitals (source: AzHHA Uniform Accounting Reports).

- **Organizing primary care access** points in communities across the County where services today are insufficient to meet current and growing needs; and

- **Offering a critical point of leadership** as the only medical system in the community directly accountable to the taxpayers for addressing broad public health care issues and emerging and unmet community needs.

2. **VISION:** The strategic plan as articulated by the BOD fulfills the MIHS teaching and safety net mission. It creates a better model for patient care and medical education that improves access, quality, cost and outcomes for patients across the County and increases the supply of future health professionals.

- The plan emphasizes expansion of ambulatory care to enhance primary care access and provide better care cost-effectively to more patients as good stewards of taxpayer support.
  
  Note, primary care investments in other communities have demonstrably reduced the need for costly emergency services and simultaneously improved the overall health of populations.

- The plan calls for expansion of behavioral health services to ensure that the needs of mental health patients in the community are met and that Maricopa County residents have access to the levels of behavioral health care they deserve when they need it. Moreover, ensuring access to behavioral health services increases the safety of the entire community. The integration of behavioral and medical services as envisioned in the MIHS model of care will improve early intervention and reduce fragmentation and costly duplication of services for the community’s most vulnerable populations.

- The plan calls for the replacement and appropriate sizing of a modern teaching hospital that trains medical professionals to deliver quality care in a cost-effective, team-based, and technology-enabled environment. Efficiencies gained in the design of a
new hospital, coupled with an expanded network of increased ambulatory and behavioral health capacity, will reduce the need for acute care inpatient beds in the replacement teaching facility.

3. **COMMUNITY VALUE:** A strong public teaching hospital and health system is as much a mark of a healthy vibrant community as quality educational institutions, modern transportation systems, thriving arts organizations, and great sports franchises. MIHS touches virtually every corner of the County through its regional burn center, Level 1 trauma center, behavioral health hospitals, comprehensive specialty services, neighborhood health centers, public health initiatives, and medical education and clinical training programs. MIHS is as relevant today as it has been for over one hundred years. It is well positioned to lead needed changes in the healthcare industry. MIHS’ distinctive strength is the operating model of a public teaching hospital and health system of care that knows how to engage patients with complex needs, to teach and train inter-professional teams of clinicians (physicians, nurses and allied health professionals), and to do so in a very cost effective manner as good stewards of community resources. This system of care is unique to MIHS. Loss of the MIHS public teaching hospital and health system would have devastating effects on the community for generations.

- Of the top 20 largest metropolitan areas, seventeen have a public safety net hospital, signaling that the crucial role vibrant public hospitals play in the communities they serve.
  - For more than 140 years, MIHS has provided significant leadership in community health initiatives, patient advocacy, public policy, and economic stability as a major employer.
  - Closure of MIHS would require private hospital systems in the community to bear the burden of absorbing over $100 million annually of uncompensated care, providing 500,000 patient care visits, training more than 400 physicians in numerous residency programs, and offering more than 3,000 clinical rotations for medical students, nurses and allied health professionals.
  - Case studies from communities where public hospital systems have closed demonstrate that while public funding continues, transparency of expenditures supported by tax dollars is lost.

4. **FACILITY ASSESSMENT:** The current MIHS facilities are not suitable for modern healthcare delivery or the training of modern healthcare professionals. The future of MIHS, a valued community asset, is uncertain without substantial capital investment.

- For decades now, MIHS facilities and services have not kept pace with the growth of the County population. The medically underserved are distributed across Metropolitan Phoenix and the current MIHS network of health facilities is insufficient to serve these populations. The MIHS facilities need to be reconfigured and expanded geographically to meet current and future community needs for medical and behavioral health services.
- The Family Health Centers (FHCs) need renovation and expansion to create an ambulatory clinical network that improves access for patients and healthcare professionals; provides an appropriate environment for medical training; and more efficiently serves the needs of the community. The current national healthcare cost restructuring requires healthcare organizations to shift resources into primary care medical home models and more cost-effective outpatient care settings for care.
• The Comprehensive Health Center (CHC) in the Central Valley is in need of renovation and most importantly, replication. As the Maricopa County population has grown, the need for specialty services in the East Valley and West Valley has increased. The centrally located CHC is unable to meet these needs. In order to provide an ambulatory based model of specialty care for County residents east and west, MIHS must construct additional CHCs in these respective communities.

• The current MIHS behavioral health facilities are at capacity and unable to meet current community need, much less the growing future needs. The demand for additional cost-effective behavioral health services is at an all-time community high, with little relief in sight. Moreover, MIHS is paving the way for the transformation of behavioral health services through its innovative and widely recognized integrated health home model that effectively and efficiently serves the whole person needs of the behavioral health patient.

• The teaching hospital, Maricopa Medical Center, constructed more than 40 years ago, has reached the end of its useful life. The facility design is not suitable for the team-based care models, advanced technologies, teaching and training requirements, and the acuity of patients today. The current facility configuration makes renovation cost-prohibitive and would not address the non-functional aspects of the current design for today’s medical training and patient care expectations.

5. INVESTMENT RECOMMENDATION: Based on detailed assessment and estimated scale of future programs, the capital required to support the facilities that enable the mission and strategic vision of the organization is $935M.

   • The cost includes the renovation of existing FHCs, expansion of the current CHC, addition of new CHCs in the East Valley and the West Valley, expansion of behavioral health services, and replacement of the public teaching hospital with a modern, right-sized inpatient facility that has a reduced number of inpatient care beds.

It is evident that a significant capital investment is required for MIHS to fulfill its mission and provide a valuable essential asset to the Metropolitan Phoenix community. The 2003 voter-approved initiative and the subsequent enabling legislation created the capacity for MIHS to utilize the Maricopa County tax base as its source of funding for community needs. The BAC recommendation is based on careful consideration of this fact and how MIHS can best serve the community. While it is not critical that all of these investments be made immediately, it will be necessary to have a comprehensive plan and the corresponding funding that addresses all of these issues in a progressive and specific time frame, recognizing that inflation will increase the amount of capital required as time goes on.

The subsequent information in this report provides the supporting detail as presented to the BAC to inform their recommendations and conclusions. This comprehensive array of information has been presented to the BAC through a progressive series of meetings such that the information from the prior meetings created the foundation for the subsequent meetings so the BAC could become fully informed prior to making a recommendation to the BOD.
The detail is laid out in the following format:

- Committee Charter and Structure
- Committee Process
- Macro Healthcare Context
- MIHS Strategic Plan
- Evaluation of Existing Facilities
- Facility Development Options Capital Requirements
- Financial Implications
- Final Recommendation to the Board of Directors
- Glossary of Terms
II. COMMITTEE CHARTER AND STRUCTURE

Purpose

1. Review, prioritize and make recommendations to the Maricopa County Special Health Care District Board of Directors ("District") on proposed bond projects in support of the Maricopa Integrated Health System mission, vision and community needs.

2. Develop a bond proposal comprised of prioritized projects and make a recommendation to the District Board regarding the issuance of bonds or any other viable financing vehicle to fund the prioritized capital projects, including the consideration of a bond election.

3. Obtain public comment, community and stakeholder input, and expert opinion into bond project and proposal deliberations.

Creation of Advisory Committee

1. The Maricopa County Special Health Care District Board of Directors ("Board") will create the Bond Committee as an Advisory Committee of the Board of Directors, as authorized by A.R.S. 38-431.

2. By Board Resolution, the Board will
   a. Identify the powers of the Advisory Committee.
   b. Establish a budget and funding source for the Advisory Committee.
   c. Require annual review of need for continuation of the Advisory Committee.
   d. Identify and contract with a consultant with project management and meeting facilitation experience to staff the Advisory Committee.
   e. Establish, in conjunction with the Chief Executive Officer, criteria by which to evaluate projects and prioritize them.
   f. Develop a timeline for delivery of the bond proposal and a companion ballot proposal.

Membership of Advisory Committee

1. Advisory Committee members are to be appointed by the District Board.
2. The District Board will select members of the Advisory Committee, representing each District and reflecting the community at large, as well as representatives from different stakeholder groups.

3. By the majority vote of the Board of Directors, one member of the District’s Board of Directors shall be selected to serve as a non-voting member of the Advisory Committee.

4. The Chair and Vice Chair of the Advisory Committee are to be appointed by the District Board.

**Powers of Advisory Committee**

1. Make recommendations to the District Board regarding the creation of a bond proposal and consideration of a bond election for the voters of Maricopa County whose goal is consistent with the Purpose of the Advisory Committee as stated above.

2. As directed by the Board of Directors and in conjunction with the consultant:
   a. Develop a working knowledge of MIHS’s mission, vision, strategies, services, programs, operations and finances as a foundation from which to evaluate future needs and projects, while taking into consideration recent economic challenges, future health care delivery trends and models, and healthcare workforce training education.
   b. Tour all current MIHS facilities to understand their ability to deliver services to meet community needs today and into the future and to secure MIHS’s role as a 21st century academic medical center.
   c. Review each proposed project in terms of its overall purpose, strategy, goals, resource requirements, performance expectations and cost. Challenge underlying project assumptions regarding demand and utilization expectations as well as changes in healthcare delivery. Any recommendations for new programs or service lines need to include business plans with a five-year return on investment pro forma.
   d. Recommend a proposed capital investment proposal that:
      i. identifies the capital needs, and priorities of the District based on goals and objectives;
      ii. analyze the operational cost impact of each plan component; and
      iii. includes a recommendation regarding capital financing.

3. The Advisory Committee may at its discretion appoint subcommittees to assist the Advisory Committee.
4. Conduct hearings to review bond projects, present the bond proposal and seek input from the community.

5. Request additional Powers from the District Board, via Bond Advisory Committee charter amendments, in order to carry out its duties as defined in the Purpose of said charter.

6. Limitations on power:
   a. The Advisory Committee may not expend District funds without the District Board prior approval.
   b. The Advisory Committee may not make District policy.

Administrative Requirements

1. Advisory Committee and its members, and any subcommittee and its members, are subject to the Arizona Open Meeting Law and Public Records Act and Arizona and District conflict of interest laws, regulations, and policies; and therefore:
   a. Must record and maintain minutes of all meetings.
   b. Conduct all meetings as open to the public and noticed as required by the Arizona Open Meeting Law.

2. Make bimonthly reports of the activities of the Advisory Committee and any subcommittee to the District Board. The Advisory Committee shall meet not less than once a month.

3. The Advisory Committee’s final report is due by February 28, 2014.

All funds held by Advisory Committee are public funds and must be held in accounts permitted for public funds and are subject to audit as public funds. Funds can only be spent in accordance with District procurement procedures.
III. PROCESS

The process to fulfill the goals set forth by the BAC Charter started in March of 2013, and went through February 2014. This process ran in parallel with the efforts by leadership and the BOD to create and finalize MIHS’s strategic vision and direction for the next five to ten years as it prepares for the changing macro healthcare environment and responds to local community need. The overall timeline of this project was dependent on the outputs of the strategic plan as it ran through its appropriate process with MIHS leadership and the Board of Directors.

The process occurred in four phases:

**Phase 1: Project Organization and Fact Gathering**
- Develop committee process and timeline
- Facility Walk Through / Contextual Interviews
- Alignment with Strategic Plan

**Phase 2: Assessment**
- Facility condition assessment
- Strategic situation assessment
- Facility sizing study
- High level capital requirements

**Phase 3: Sensitivity and Institutional Implications**
- Operational, financial, and care model implications
- Capital prioritization
- Phasing options

**Phase 4: Bond Preparation and Communication**
- Finalize financial implications
- Prepare final recommendation
- Communication

Phases 1-3 are complete with the expectation that Phase 4 will primarily occur after the recommendation of the committee has been made to the BOD. If a bond is eventually approved future planning work will focus on developing a preferred option, detailed timeline and detailed project budget with additional studies that may be required to arrive at the best and most cost effective plan.
IV. MACRO HEALTHCARE CONTEXT

The U.S. healthcare system continues to evolve quickly, impacting the way health systems are expected to deliver care and will be reimbursed in the future. While it is difficult to know exactly what will happen to the industry over the next five to ten years, there are some trends that are fairly robust and suggest a potential direction. The BAC considered the following observations in Phase 1 of their committee process.

1. U.S. spending patterns are not sustainable; we are a “sick care” system, not a “health care” system.
2. Hospitals and physician services have represented more than 50% of the increase in per capita healthcare cost over the past decade.
3. 5% of patients are responsible for 50% of health care spending – there will be a continued emphasis to target the 5% in creating models of care to reduce overall costs.
4. Our current payment models are not sustainable (e.g. fee-for-service payment models that reward increased utilization).
5. Chronicity and co-morbidities are likely to drive increased healthcare demand over the next decade, even if utilization is managed and “waste” is eliminated.
6. The funding for reform includes provider payment cuts, but the gap between supply and demand for most health professionals suggests there may not be a significant drop in “per unit” labor cost.
7. Funding sources for public hospitals are expected to deteriorate, which will force systems to identify alternative funding sources or cut overall expenditures.
8. Being in a capital-intensive sector with a relatively poor history of asset utilization has caused many institutions to defer investment to the fixed asset base.
9. The average age of plant for hospitals across the country is now close to ten years.
10. Historical reimbursement favored highly complex care, which is where teaching hospital investments (i.e., talent, facilities, technology) have been concentrated.
11. As the reimbursement model shifts towards more of a value-based, population health model, the emphasis will have to shift to managing patients before, during and after acute care interventions.
12. Managing patients across a continuum will entail a series of build vs. buy vs. partner decisions, and impacts availability of capital for hospital and ambulatory investment.
13. As care delivery shifts, and patients become more responsible for their healthcare spending, reputation will no longer serve as a proxy for quality.

Many of these trends will have a direct impact on MIHS and are shaping a strategic direction that will enable our public asset to deliver its community teaching hospital and safety net health system mission successfully in the new healthcare environment.
V. MIHS STRATEGIC PLAN

The voters of Maricopa County founded MIHS in 1871, and reaffirmed its community-critical mission in 2003, when County citizens voted to create the Maricopa County Special Health Care District and support MIHS with public funding. An elected five-member BOD leads the Special Health Care District and has responsibility for ensuring the long-term viability of MIHS and its voter-mandated mission.

This year, the BOD completed a strategic planning process and in August, approved the 2013 – 2018 Strategic Plan. The BOD developed the strategic plan by considering emerging community need, healthcare industry trends, the accomplishments achieved from the prior five-year strategic plan, an assessment of current operating assets, and the charter of the organization as approved by voters in 2003.

The MIHS 2013 – 2018 Strategic Plan informed the foundational work of the BAC. The key elements of the plan are noted in the following six strategies:

1. Enhancing Mission Relevancy and Community Leadership
2. Creating a System of Care to Improve Community Health
3. Addressing a Community Crisis in Behavioral Health
4. Offering Unmatched Community Value
5. Designing Health Facilities for the Future
6. Ensuring Financial Sustainability

Each of these strategic elements is described below in greater detail.

1. Enhancing Mission Relevancy and Community Leadership: MIHS is the public teaching hospital and safety net health system of care serving the fourth largest populated county in the United States. During the strategic planning process, the BOD reaffirmed a set of core purposes for MIHS including:

   • Teaching and training a next generation of physicians, nurses and allied health professionals in response to an ongoing shortage of clinicians in Maricopa County and statewide;

   • Serving as a safety net provider to fill critical gaps in care for underserved populations and the under and uninsured individuals and their families;

   • Organizing primary care access points in communities across Maricopa County where access is insufficient to meet current demand; and
• Offering a critical point of leadership as the only medical system in the community directly accountable to the taxpayers to address broad public health issues and emerging and unmet community needs.

MIHS has always adapted and responded to community needs. That is a common thread that runs through the organization’s 140+ year legacy. It is a legacy of leaders who have carried the public teaching hospital and health system mission forward and it is a mission that is relevant as much today as it was in the beginning. As the public teaching hospital and health system grew over the hundred plus years, MIHS leaders viewed community wellness from a big picture perspective. Hence, the system today offers the full continuum of services to care for its community and is exactly the system of care model required for the future. From prevention and education programs, primary and specialty care clinics, behavioral health hospitals, regional burn and trauma center, emergency and hospital services, a managed care insurance company, and an integrated medical group, MIHS occupies an important public mission and is complementary to the private healthcare sector.

The legacy of leadership is similarly represented in the multi-specialty physician group practice that is the primary partner and medical staff provider for MIHS, District Medical Group, Inc. (DMG). DMG is also the County’s largest integrated medical group practice. The MIHS partnership with DMG is foundational to the 2013 – 2018 Strategic Plan, and hence, the plan includes the contributions and passionate ideas of the medical group. DMG shares the MIHS mission of teaching and training future healthcare professionals and serving as the community safety net for the most vulnerable, and the MIHS vision of designing a public teaching hospital and health system model for the 21st century.

2. Creating a System of Care to Improve Community Health: The demands on a public teaching hospital and safety net system of care are changing in light of the Affordable Care Act (ACA) and Maricopa County’s growing and increasingly diverse and geographically dispersed population. As a safety net health system of last resort for people who lack the means to pay for care, and for high risk populations with complex co-morbid conditions and illnesses, MIHS must provide leadership in the design and deployment of new models of patient care and new methods of clinical training that align accountability for care outcomes and reduced costs. This is a shift of risk for performance to healthcare organizations and healthcare professionals, and MIHS must invest in the people, processes, and technology to manage that risk.

To respond to those changes MIHS will pursue strategies to deliver more care outside the walls of the hospital and in the community, and teach and train clinicians to work in inter-professional teams to deliver efficient and effective care. Specifically:

• The MIHS strategic plan allocates a greater share of system resources to grow access to primary care and specialty services in underserved parts of the County and to deliver that care in a more efficient, integrated model that can improve outcomes and experience and reduce costs. This enhanced capacity and service is essential to address emerging and unmet needs that often translate into longer-wait times for primary and preventive care services, access to specialists, and overuse of the hospital emergency department for non-emergent needs.
Moreover, community need is growing due to an aging population and an increase in co-morbid conditions (i.e., congestive heart failure, diabetes, pulmonary disease). This demand is occurring independent of the passage of the ACA and represents a shift of care from the hospital to the physician-office or ambulatory care setting. The ACA encourages development of medical “homes” that can manage the total care of patients and be accountable for outcomes and costs of populations. MIHS has a strong track record in delivering care in this model. MIHS care management support services such as diabetes education, family learning centers and prenatal programs focus on health and wellness, outcomes and value, preventing unnecessary and expensive hospitalization costs. The strategic plan specifically aligns to the medical home model and defines a scope of services in the ambulatory sites consistent with the required competencies of a medical home care site.

The strategy recognizes the imperative to replace the functionally obsolete Maricopa Medical Center (MMC). That investment is essential so that the District might continue to serve both MIHS’ teaching mission and safety net role. Absent a new MMC it will be increasingly difficult if not impossible for MIHS to teach, train, and continue its role as the region’s only public safety net teaching hospital and health system of care.

The system of care strategy commits MIHS to continue supporting through advocacy, education, and service delivery those programs that improve care outcomes, access, and costs at the population level. It represents an affirmation of the leadership role MIHS intends to play as a partner with payors, employers, municipalities, school districts and hospitals and physicians to make Maricopa County a healthier place to live and work. In effect, the strategy refines the role of a 21st century public teaching hospital and system of care in a post-ACA market.

### 3. Addressing a Community Crisis in Behavioral Health:

The MIHS strategic plan recognizes the gaps in access to behavioral health services in Maricopa County and the reality that lack of access to needed mental health and substance abuse services drives up emergency room utilization and costs for the region’s schools, law enforcement, other health systems and hospitals, and employers. To address those needs the plan specifically:

- Proposes increased inpatient bed capacity for behavioral health services as a response by MIHS to meet the glaring need in the community for more mental health and substance abuse services;

- Considers consolidation of MIHS inpatient behavioral health capacity on a single campus to enable better care for patients and enhanced service to families;

- Envisions the opportunity to generate operational efficiencies and savings via the construction of one new facility rather than maintaining three separate hospitals and then reinvest savings in new programs and expanded behavioral health services to meet emerging needs; and
Supports the integration of behavioral health services into community-based primary care medical homes so that needed access to care can be provided closer to population centers across the County.

4. **Offering Unmatched Community Value**: The MIHS planning process considered the cost of transferring the case mix and mission of a public teaching hospital and safety-net system of care to private sector hospitals, most notably Banner Good Samaritan and Dignity St. Joseph. Critical findings were:

- The need for taxpayer subsidy of care for the underserved and medically indigent would not go away; rather, funding would most likely need to be transferred to private hospitals to offset the adverse financial impact of a sudden influx of the medically indigent and under-insured at a time when all hospitals are already facing increased financial uncertainty from the ACA; in this scenario, challenges with respect to public accountability for use of those funds and the transparency that comes with a public governing board would be significant.

- A failure to re-invest in MIHS would have an adverse impact on employers at a time when they are already struggling with the rising costs of care from an aging, chronically ill and fast growing population that needs access to the primary and preventive care services that MIHS offers.

- MIHS, today, partners with numerous clinical training institutions and offers eight fully-accredited residency programs that are an essential training ground to address an already acute and unfortunately growing shortage of clinicians (physicians, nurses and allied health professionals) in Maricopa County. The investment of resources required and the complexity involved to replicate those programs in another system will only further strain the region’s already stressed health care.

- MIHS has a culture of caring, an integrated medical staff and faculty, a complex patient population, and the special expertise to support inter-professional training and clinical rotations unlike any other health system in the Valley. The emerging model for effective and efficient healthcare delivery will require organizations to teach and train physicians, nurses, pharmacists and allied health professionals to work together in teams organized around the needs of patients. The MIHS strategy is to build an integrative hospital campus that accommodates this team-based approach to training. The team-based approach is essential to implementing new models of care that hold out promise to improve care outcomes, patient experience, and to better manage costs of care.

- MIHS has a long-standing and deep history of collaborations. Its success is rooted in successful community collaborations and building of broad community coalitions. The 2013 – 2018 Strategic Plan envisions the creation of many more such alliances. The plan specifically calls out opportunities to partner with other federally qualified health systems, private practice physicians, healthcare organizations, and educational institutions who share the same vision for improving community health.
Lastly, the mission and work of MIHS as the County’s vital public teaching hospital and health system is consistent with broader goals envisioned for the community. For example, the Center for the Future of Arizona in its *The Arizona We Want 2.0* report suggests that education is the key driver of Arizona’s economy; that we need to recruit and retain more talented young people who are committed to Arizona’s future; and that the strength of the state rests in local communities. The MIHS strategic plan relates and contributes to each of these important goals. Specifically, MIHS provides more medical education and clinical training than anyone else in the County; has trained more physicians currently practicing in the County than anyone else; and has more community-based family health centers than any other healthcare organization. As MIHS continues its strategic transformation as the premier teaching provider of essential health services with a focus on wellness, population health, and chronic disease management, MIHS is indeed contributing to making Maricopa County a healthy and vibrant community.

5. **Designing Health Facilities for the Future**: An objective assessment of MIHS’ current facilities in the context of emerging community need and the organization’s strategies to serve that need reveal a critical gap that can only be addressed through a reinvestment in MIHS’ community and physician-office based services, behavioral health facilities, and an acute care teaching hospital. Specifically:

- The network of Family Health Centers (FHC) that are so critical to extending access to primary and preventive care services to at-risk and underserved populations are a collection of buildings inherited by the District from the County. Most are undersized, outdated relative to changing care models, and not in locations that correspond to emerging community needs.

- The Comprehensive Health Center (CHC) represents a good model for delivering quality, efficient care outside the hospital. The current CHC on the Roosevelt campus requires updating and expansion, and additional CHC sites are needed across the County to accommodate emerging community need for geographically dispersed specialty services.

- The two MIHS behavioral health hospitals are operating at capacity and cannot meet current and growing community need. Neither of these facilities is functionally effective nor do they have the ability to expand capacity and moreover, operating two facilities on separate campuses prohibits operating efficiencies that could be achieved by consolidation.

- Maricopa Medical Center (MMC) is more than 40 years old; changing community needs and care models has rendered it functionally obsolete and exceedingly costly to operate for purposes of providing safe, quality care.

6. **Ensuring Financial Sustainability**: The MIHS strategic plan has been designed to improve the District’s financial performance so that it can stabilize its operating margin and prepare for anticipated funding challenges facing public teaching hospitals in the future. Specifically the plan calls for the following strategies:
• **Converting Uninsured to Covered Lives:** The strategic plan presumes that MIHS will be able to retain patients currently served by MIHS that are today uninsured, however, in 2014, they will be covered through AHCCCS or the health exchanges. Retaining these reinsured and newly insured patients through an updated and renovated network of clinical sites and services, MIHS can generate an estimated $20 million annually in financial improvement.

• **Growing Ambulatory Capacity to Serve More People in Need:** The plan expands outpatient capacity to enable MIHS to serve more unmet need and underserved patients outside the walls of MMC and in a community setting, producing an estimated $16 - $20 million in additional improvement for MIHS once fully implemented.

• **Continuing to Manage Costs:** The strategic plan acknowledges the continuing need to improve operations to reduce expenses consistent with the industry-wide pressure to deliver better care at lower cost as envisioned in the ACA. Assuming a five percent reduction in cost aided in part by more efficient facilities MIHS may improve operating performance by $20+ million on a go forward basis.

Collectively, fully implementing the strategic plan, including funding new facility projects, could generate an additional $50 - $60 million in new margin to offset the costs of serving unmet community need as a public teaching hospital and safety net health system of care.
VI. EVALUATION OF EXISTING FACILITIES

The condition and functionality of existing facilities is an important consideration when trying to determine if or how those facilities may be used in the future. These assessments are based on current use of each space although determining the future value of each building must also take into account projected levels of activity by type and the adaptability of each building to better serve a current or future use.

Developing the evaluation of the existing facilities was a progressive process that built upon input from the local knowledge of MIHS staff, Kurt Salmon’s proprietary facility condition survey tool and Kurt Salmon’s national healthcare experience.

The existing facilities were evaluated in three ways:

1. Condition of the existing infrastructure and configuration
   - Provides insight into the capacity of the existing buildings to continue to be used for current purposes as is, or to be adapted to serve those needs.

2. Use of the available capacity of the existing spaces vs. national comparisons
   - Evaluates whether the clinical spaces are fully utilized or have capacity for growth

3. The amount of department space per key clinical room vs. planning standards
   - Comparison of the size of individual rooms and the total department space to serve the contemporary healthcare technology and care models

A tour of the facilities and review of floor plans also supported a quantitative assessment to put into context the use of capacity as impacted by the amount of space in each room / department.

Evolution of Healthcare

Healthcare facilities are much different than most commercial buildings. They are comprised of a large quantity of highly specialized rooms that have a great density of infrastructure. Because they serve the public at their most vulnerable times they are also governed by a stringent set of building codes and operational requirements for certification as a healthcare facility.

Much has changed in the 43 years since MMC was built for inpatient acute care services and the 38 years since the 2619 Building was built for inpatient behavioral health services. Figure 1 provides examples of several of the high-profile changes from the past 43 years. In addition to these clinical, technology and legislative factors there have also been changes in what is considered the best practice of medicine in both the acute care and behavioral health environments.
Figure 1 – Technologies, diseases and legislative changes since 1970

Beyond the inpatient environment, these evolutionary events have created the need for robust outpatient centers such as the CHC. The CHC and FHCs are generally newer buildings and the change of how care is provided in these buildings while having an impact, is not as physically impactful as in the inpatient environment.

Regardless of inpatient or outpatient activities, changes will continue to occur over the next 40 years. Therefore the evaluation of the existing facilities must not only consider functionality relative to today’s requirements but also the capacity of these buildings to adapt to future use. The evaluation takes into account the past and the recommendation going forward anticipates even more rapidly occurring changes in the future.

MIHS has continued to evolve since its inception in response to community need and changes in how healthcare is provided. As a result, MIHS now has a variety of facilities and locations including eleven Family Health Centers, a Comprehensive Health Center, the inpatient hospital Maricopa Medical Center, and inpatient behavioral health services at Desert Vista in Mesa and the 2619 Building on the Roosevelt campus.
Each of these facilities was objectively evaluated on the basis of data analytics and infrastructure assessment surveys. Each facility was toured by the Kurt Salmon staff that qualitatively assessed each against their national experience with healthcare facilities. Each was evaluated for capacity, functionality, space allocation, and condition of the building and its systems.

**Facility Condition Survey**

The best buildings are at, or just above, the 50\(^{th}\) percent scoring against contemporary healthcare facility criteria. Most of the existing MIHS facilities score between the 15\(^{th}\) and 40\(^{th}\) percentile.

- Family Health Centers are the lowest rated of all of the MIHS buildings. They range from just above the 15\(^{th}\) percentile to the 25\(^{th}\) percentile of contemporary ambulatory clinic criteria. All of the facilities are poorly rated for mechanical, electrical and IT infrastructure. The Guadalupe and Mesa centers are also deficient in their functional/structural configuration. For current demand and functionality most of the buildings could be improved with the exception of these last two.

- The CHC has a higher rating. Its electrical systems need upgrading and this can be addressed in the existing building. The configuration of the building is highly adaptable to continued use as an outpatient facility. The building is also structured to support two more floors vertically and that positions the building as a good long-term asset.

- The 2619 Building serves two purposes, inpatient behavioral health and administrative office functions. The building has a score in the 40\(^{th}\) percentile of the criteria of these uses. Electrical and mechanical shortcomings represent the greatest deficiencies. In addition, the configuration of the behavioral health units were designed for the model of behavioral health care nearly 40 years ago and that model has since changed. The patients that are seen here have medical conditions and would be better served in a behavioral unit within a general acute care hospital. This facility is not easily adaptable for contemporary behavioral health services, however it has the potential to serve as a long-term asset for administrative functions on the Roosevelt campus.

- Desert Vista is ranked in the 40\(^{th}\) percentile and, even though it is much newer than 2619, it is not well designed for providing contemporary inpatient behavioral health services. The site, vertical circulation, mechanical and electrical systems are all deficient. These latter deficiencies can all be addressed but the building has limited capacity to be reconfigured for private patient rooms. Although the building is structured to support two more floors vertically which would create some private rooms, this is not a viable solution to adding capacity. The number of rooms added would not be enough to create an all private rooms model of contemporary care and vertical construction would require the closure of the facility for an extended period, taking the beds out of commission and hence rendering it useless to meet current critical community behavioral health needs.
• Although Maricopa Medical Center is over 40 years old, it scored just above the 50th percent against contemporary hospital criteria. Unfortunately, achieving that score, the highest rating of all the MIHS buildings, has come at a substantial cost. Maintenance of MMC has consumed nearly all of the modest capital available to the health system over the past ten years. The annual expenditures required for maintaining adequate operating systems at MMC, specifically mechanical, electrical, information technology, ADA requirements and life/safety systems, has been increasing with each passing year due to the significant age of plant. Annual maintenance costs aside, the two greatest limitations facing MMC are distances between support columns and the relatively narrow building envelope, especially on the bed floors. With the need for new technologies, larger rooms and more separation of patients, it will virtually impossible to adapt this building for long-term inpatient use.

• The Warehouse and Administration buildings on the Roosevelt campus are similar in rating to the hospital, with the electrical and mechanical systems being most deficient. These deficiencies can be addressed in these buildings. Based on the functions these buildings serve, they have the potential to be viable long-term assets for MIHS.

Functional Assessment

The functional assessment is based on the key metrics of the use of available capacity, the size of key clinical rooms (patient bed rooms, operating rooms, imaging rooms, emergency department rooms, etc.) and the total size of the department including all support space for these clinical services. A red/yellow/green rating is assigned by type of bed and category of clinical function. The measures for these ratings are based on contemporary planning standard developed through Kurt Salmon’s experience in planning for healthcare facilities similar in nature to those at MIHS.

Quantitative Assessment

• Ambulatory Services
  o Many of the FHC’s measure as having adequate to excess total space, except for Chandler and Sunnyslope.
  o With the exception of Avondale, Glendale and Chandler, the remaining sites have good individual exam room sizes.
  o There is available capacity at each of the sites.

• Inpatient Services
  o Maricopa Medical Center, the 2619 Building and Desert Vista are rated in the red category for space per room and overall department space, with the exception of labor, delivery and NICU units.
  o The majority of acute care beds are underutilized which is partly due to the lack of private beds. This creates the need to “block” beds to accommodate patients who cannot be placed with another patient for gender/age/infection reasons.
Behavioral health beds are highly utilized. These patients are more adaptable to placement in a non-private bed environment although this may affect the quality, safety and length of care.

- Diagnostic and Treatment Services
  - The main floor of the hospital been appended and adapted multiple times to keep up with the demand for services and new technologies. As a result some there are some areas that have excess space that cannot be well utilized due to the configuration or location of that space.
  - The surgery, cardiology, endoscopy and MRI testing/treatment rooms are undersized. Most of the remaining rooms are close to contemporary standards.
  - Surgery and endoscopy are undersized in total department space due to lack of equipment and supply storage, staff work space, and patient prep/recovery beds.
  - The total department space for imaging is mainly oversized. Even though there is excess square footage it is largely underutilized space because it was configured for a much different time and not easily adaptable. For example, MRI rooms have been added to the periphery of the first floor and not inside the department due to column widths and where/how the space is available.
  - With the exception of diagnostic imaging, the remaining modalities have some available capacity.

Qualitative Assessment

Family Health Centers

The FHC's are highly variable in their amenities, access and functionality. Some are open and friendly with good resources for patients while others have security bars and are more intimidating. The locations of most of the FHC's do not offer high visibility and easy access, which will be especially important to meet the strategic goals of MIHS.

Comprehensive Health Center

The CHC was originally built in 1994 and not fully occupied initially. Over the years it has been built out as it has been filled with services. To continue to expand exam room capacity and add services, the space for patient waiting has been moved into the building’s central corridor.

The clinical areas are generally well sized and organized. Some of the departments could take on more patient volume if schedules were evened and rooms were shared more fully. A high percentage of the departments are highly utilized.

The CHC has largely reached its capacity to adapt to further changes, however it is well positioned for continued use as a good MIHS asset. It will need to expand to accommodate any significant amount of increased demand.
**Behavioral Health Services**

Behavioral health services are spread across three locations; Desert Vista, the 2619 Building and the Psych Urgency Center. MIHS owns the first two buildings, which are outdated in their ability to deliver contemporary care. Currently the inpatient facilities only have capacity to serve non-voluntary patients and demand is exceeding capacity. MIHS is unable to accept voluntary patients and is therefore not meeting community need.

The majority of patient rooms house two to three patients each. Patient security and staff control of the environment are challenging in this type of setting, which affects the efficacy of patient care. It is beneficial to the community as a whole that this type of care be effective and serves the unmet needs of those with mental diseases.

Having three locations results in a high level of ambulance transfers including frequent multiple transfers for some patients. In addition the care professionals are spread across a wide geographic area resulting in lower use of their time in patient care.

Behavioral patients with medical needs are placed in the 2619 Building. While this building is on the hospital campus it is difficult to have the proper resources in this facility and, with the open nature of the unit, expensive medical equipment is at risk and frequently damaged. Some patients must move between this building and the hospital as well.

It would be most cost effective and patient care effective to:

- Locate all of the non-medical behavioral health patients in a single facility
- Design that facility for contemporary care of these patients
- Locate the medical behavioral health patients in the acute care facility
- Have all behavioral health patients on a single campus so the care professionals may work together seamlessly and efficiently

**Maricopa Medical Center**

Maricopa Medical Center was built at a time when healthcare delivery, technology, acuity and building codes were much different than today. Like most facilities designed to serve the needs of the past, the size and configuration of the facility limits its adaptability for the present and future provision of healthcare.

Current hospital building codes have recognized these needs leading to larger areas for advanced technologies, more space around the patient bed for equipment and staff, greater separation of patients into single rooms, spaces to accommodate disabled patients and requirements for greater confidentiality. Major limiting factors for most older hospitals is the height of floors to allow for expanded infrastructure requirements, the distances between building support columns to allow for the clear spaces required by code, and the width of the building envelope.

i. **Floor to floor heights:** The existing building heights are actually quite good even by today’s contemporary hospital planning guidelines.
ii. **Support column width:** New inpatient buildings have 28 to 32 feet between support columns throughout the building. The distance between support columns at MMC are mostly 16 and 24 feet. These distances make it nearly impossible to adapt the building to meet code and improve functionality (bed rooms, operating rooms, imaging rooms, and cardiac catheterization labs in particular) even with renovation.

iii. The narrow column spacing results in a **narrow building width**, which also limits the adaptability of the hospital on each inpatient floor. The patient units are long and narrow with a centrally located nursing station, limiting visibility and staffing efficiencies.

These constraints are “hard-wired” into the building making it nearly impossible to expect to use MMC for many more years. The limited adaptability of the hospital is seen in multiple ways. Inpatient units are designed for a time before drug resistant bacteria when average patient acuity was lower, longer lengths of stay were acceptable, there were fewer treatment options and much of today’s technology was not yet invented. For example:

- There is a very low ratio of single patient rooms making infection control and managing patient treatment more difficult.
- The intensive care units at MMC are open spaces with little space between patient beds and limiting the ability to manage light and noise.
- Semi-private rooms result in underutilization of available capacity since beds must be blocked for gender and age matching or because of infectious patients.
- Semi-private rooms also increase the length of stay of the average patient because more transfers are required to make the best use of available rooms. Each transfer causes a longer length of stay.
- Managing noise, light and transfer can result in an improved outcome and lower use of resources.
- Higher acuity means more staff providing care, and more supplies, drugs and equipment to treat the patients. The units were not sized to store these additional staff and materials and so other support spaces are inappropriately taken over, including teaching space.

There are similar implications for diagnostic and treatment service areas.

- Space for some imaging and treatment modalities have been added onto the building resulting in disjointed departments.
- Very few beds are available for surgery same day admission patients. The areas are crowded and inefficient, lacking privacy and room for adequate storage.
- Departments are compartmentalized which limits cross-functionality of staff and makes way-finding for patients more difficult.

These realities work against the goals of healthcare reform and increase the challenge of controlling healthcare costs which ultimately is an ongoing added cost to the public.
The end result is that the existing portfolio of MIHS healthcare facilities is not suitable to enable implementation of the MIHS strategic plan. Therefore, the current facility conditions place MIHS at risk of fulfilling its fundamental and voter-mandated community mission, which is:

- Training the next generation of healthcare professionals for the community and region;
- Providing safe, reliable, quality care to the citizens of Maricopa County;
- Serving the medically underserved;
- Meeting emerging community need; and
- Functioning cost-effectively as a good steward of community resources.
VII. FACILITY DEVELOPMENT OPTIONS AND CAPITAL REQUIREMENTS

As outlined in the facility assessment section of this report, the voter-mandated mission of MIHS cannot be achieved within the existing portfolio of health facilities, specifically the health centers, the behavioral health hospitals, and the acute care hospital. Repositioning the ambulatory health centers, redesigning the behavioral health facilities, and replacing the general acute care hospital can better serve the public teaching hospital and health system community goals.

In general, when organizations develop new healthcare facilities today, they strive to create environments that meet anticipated capacity requirements, support effective patient care, and do so in an operationally efficient way. Regardless of the mechanisms used, it is a fundamental national economic necessity to achieve these pragmatic and practical goals, as outlined by in the healthcare reform act. These strategic and public policy goals serve as the underlying drivers for MIHS to consider investing in its facilities for the next era of service to Maricopa County.

The purpose of developing facility options was not to reach a final conclusion on a specific plan, rather to demonstrate that there are solutions available and to define an order-of-magnitude cost to execute the possible solution. Solutions for the ambulatory health centers considered current geographic locations, health center capacity for growth, and emerging community need. This led to a defined set of outpatient capital investments across the health centers, incorporating both renovation and new construction, which would best serve the strategic ambulatory need and volume projections.

Alternatively, various options were considered for the location of a new behavioral health hospital and a replacement general acute care hospital. These included renovation and new construction options on the existing Desert Vista campus, the Roosevelt campus, and a potential green-field campus. Considering various construction and locations options provided the BAC with an investment cost range that could confidently accommodate the most appropriate solutions going forward.

Community Need

The strategic planning process, conducted by the BOD and with data provided by Navvis Healthways, identified community need for ambulatory, behavioral and general acute hospital services. Navvis Healthways developed three demand scenarios looking out ten years for each of the respective services, specifically including low, moderate and high community need options. This community need analysis was shared with the BAC who then asked Kurt Salmon to translate the projected service demand into facility requirements. Kurt Salmon then matched the projected community need facility requirements for the three scenarios against the existing capacity of MIHS facilities.

Based on the evaluation of existing facilities, and the relatively tight range between low and high 2023 volume projections, the components and alternatives for each facility option became narrowed. With the exception of behavioral health inpatient beds, both the low and high ends of the range of projected volumes result in essentially the same number of rooms required to serve that volume. Even for behavioral health the
difference is only approximately one bed unit (24 beds), and the mid-point of those projected behavioral health volumes was used to arrive at the targeted number of behavioral inpatient rooms.

In the categories of ambulatory and behavioral health services, MIHS falls short of projected need and requires increased capacity. In the general acute care hospital category, MIHS requires less capacity going forward than it has today. The following table compares existing capacity against projected need for MIHS ambulatory, behavioral and acute care hospital services.

<table>
<thead>
<tr>
<th>MIHS SERVICE CATEGORY</th>
<th>MIHS EXISTING CAPACITY</th>
<th>MIHS PROJECTED NEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHC’s and new East/West Valley CHC exam rooms</td>
<td>142</td>
<td>203</td>
</tr>
<tr>
<td>Central Valley CHC exam rooms</td>
<td>158</td>
<td>171</td>
</tr>
<tr>
<td>Behavioral health inpatient beds</td>
<td>183</td>
<td>240</td>
</tr>
</tbody>
</table>

Based on these inputs, the following fundamental goals were established as parameters to developing the potential facility investment options:

**Outpatient Services**
1. Renovate, expand and/or relocate the existing FHCs to achieve strategic patient service goals and efficient operating models.
2. Expand the CHC capacity on the Central Valley Roosevelt campus to enable continued shifting to outpatient services.
3. Construct new CHCs and include diagnostic, treatment and therapy services to improve access to healthcare across the County.

**Behavioral and Acute Care Inpatient Services**
1. Replace the acute care hospital with fewer inpatient beds for improved teaching, efficiency, safety and satisfaction.
2. Consolidate all three behavioral health service sites for improved efficiency.
3. Redesign clinical care services to deliver contemporary care and improve training.

**Medical Education and Clinical Training Programs**
1. Enhance academic and education capabilities and support spaces.
Facility Options

Three high-level facility options each were devised for the acute care hospital and behavioral health services. In addition to meeting the fundamental goals, a major emphasis in developing the options was to gain as much functionality and efficiency as possible while limiting unnecessary spending.

Prior to arriving at the final three options for acute and behavioral services as noted below, multiple options were conceptualized, considered and tested. Most of those concepts were variations on the final three. The following guidelines were then used to arrive at those options that have the greatest potential to serve the stated goals. These include:

1. Each option must be buildable, phase-able and functional when complete.
2. Minimize the number of “make-ready” projects required to achieve the end result.
3. Retain and/or repurpose as many existing buildings as possible.
4. Each building should have adequate parking that is close to a highly visible front entrance.
5. Various types of vehicular traffic circulation should be separated (e.g., public, emergency, physicians/employee, service).

An overview of these remaining options is shown below and cross-referenced to align compatibility of behavioral health and acute care options.
Regarding the construction of a replacement acute care hospital, three viable options exist, specifically constructing on the east and west ends of the Roosevelt campus, as well as building on a green-field site. The variability in cost between these three options is negligible, less than two percent. This includes the necessity of acquire land to build a green-field option.

Regarding the behavioral health options, renovating the existing acute care hospital, Option 1 above, was retained to show that reuse of MMC was tested. While this is possible to do so, as shown below, the estimated cost of renovation is within seven percent of the cost of building a new behavioral health hospital. Therefore, it is a possible option, however not recommended. While renovating the acute care hospital is slightly less costly, the end result is a facility that may not be suitable or safe for behavioral health patients and staff. The resulting inefficient configuration would likely require additional staffing which would make this solution much more costly over the life of the building.

Capital projections were developed for each option considered, for new CHCs, and for replacing the FHCs, with the exception of the HIV/AIDS clinic that has been recently renovated. The capital needed for each potential option was fully loaded project costs, including construction costs, fees, furniture and equipment. To provide context, these costs include inflation between now and 2020 for most projects and through 2022 for the option to reuse MMC for behavioral health. While it is possible to complete the amount of construction proposed in the option by 2020, a specific implementation timeline was not defined. If these projects were spread over a longer time period then additional inflation of these costs should be added to the capital total below.

<table>
<thead>
<tr>
<th>Acute Care Hospital</th>
<th>BH Hospital</th>
<th>CHC’s</th>
<th>FHC’s</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$541M to $548M</td>
<td>$247M</td>
<td>$102M</td>
<td>$26M</td>
<td>$916M to $923M</td>
</tr>
<tr>
<td>New Hospital</td>
<td>New Hospital</td>
<td>East CHC</td>
<td>Replace:</td>
<td></td>
</tr>
<tr>
<td>Education / Research</td>
<td>Laundry</td>
<td>West CHC</td>
<td>Avondale</td>
<td></td>
</tr>
<tr>
<td>Power Plant</td>
<td></td>
<td>Expand Central</td>
<td>El Mirage</td>
<td></td>
</tr>
<tr>
<td>2619 Renovation</td>
<td></td>
<td>CHC</td>
<td>Sunnyslope</td>
<td></td>
</tr>
<tr>
<td>Relocate Helipad</td>
<td></td>
<td></td>
<td>South Central</td>
<td></td>
</tr>
<tr>
<td>Demolition of existing hospital</td>
<td></td>
<td></td>
<td>Guadalupe 7th Avenue</td>
<td></td>
</tr>
</tbody>
</table>

+$5.5M + $2M each for East and West + $4M to $9.5M
VIII. FINANCIAL IMPLICATIONS

In the strategic plan the MIHS Board specifically called out the importance of being good stewards of public resources as MIHS fulfills the role of Maricopa County’s public teaching hospital and health system of care. Directly related to that goal, the Board reviewed data on emerging market need, changing models of reimbursement, and the strategies to improve the District’s operating margins so that it can sustain critical access to needed care.

Three strategies were identified that can help build fiscal sustainability for the mission of the system, specifically:

Converting Uninsured to Covered Lives:

A review of MIHS’ historical payer mix from FY2010 to FY2013 suggests that MIHS can realistically achieve a redistribution of current patient volume from uninsured status to insured status via either AHCCCS or health exchange enrollment. Assuming no volume growth, this improved payer mix produces an average bottom line improvement of approximately $20 million (after netting out presumed annual expense increases). Realizing this gain will require MIHS to execute strategies to proactively enroll patients in AHCCCS and convert uninsured patients to the health exchanges; and to reinvest in facilities and programs to retain those patients who currently are served by MIHS, however will now have additional choices through ACA-mandated coverage.

Growing Ambulatory Capacity to Serve More People in Need:

Assuming full build-out of two ambulatory health centers, incremental outpatient volume increases were calculated. Net realizable values by payer as developed by MIHS were then applied to the forecasted increase in volumes, and based on that calculation and the revised payer mix, a projected potential increase of $20+ million in net revenue is as follows:

<table>
<thead>
<tr>
<th>Ambulatory Growth</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHC</td>
<td>1,902,227</td>
<td>1,671,801</td>
<td>3,995,159</td>
<td>6,547,172</td>
</tr>
<tr>
<td>FHC</td>
<td>1,374,025</td>
<td>1,374,025</td>
<td>704,672</td>
<td>1,073,851</td>
</tr>
<tr>
<td>Inpatient</td>
<td>1,921,955</td>
<td>1,921,955</td>
<td>1,938,772</td>
<td>2,179,249</td>
</tr>
<tr>
<td>Total Ambulatory Growth</td>
<td>5,198,207</td>
<td>4,967,782</td>
<td>6,638,603</td>
<td>9,800,273</td>
</tr>
</tbody>
</table>

Accumulated Ambulatory Growth

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHC</td>
<td>10,165,989</td>
<td>16,804,592</td>
<td>26,604,865</td>
<td></td>
</tr>
<tr>
<td>FHC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inpatient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Ambulatory Growth</td>
<td>10,165,989</td>
<td>16,804,592</td>
<td>26,604,865</td>
<td></td>
</tr>
</tbody>
</table>

29
A complete breakdown of the projected increases in volume of visits by projected site of service and payer mix is provided below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FHC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12,901</td>
<td>12,901</td>
<td>6,300</td>
<td>10,929</td>
</tr>
<tr>
<td>AHCCCS - Non MP</td>
<td>3,241</td>
<td>3,241</td>
<td>1,582</td>
<td>2,745</td>
<td>6,895</td>
<td>3,444</td>
<td>6,820</td>
<td>11,177</td>
</tr>
<tr>
<td>AHCCCS - MP</td>
<td>1,830</td>
<td>1,830</td>
<td>894</td>
<td>1,550</td>
<td>4,858</td>
<td>2,545</td>
<td>5,039</td>
<td>8,259</td>
</tr>
<tr>
<td>Exchanges</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medicare</td>
<td>716</td>
<td>716</td>
<td>350</td>
<td>606</td>
<td>460</td>
<td>966</td>
<td>1,912</td>
<td>3,134</td>
</tr>
<tr>
<td>Medicare HMO</td>
<td>791</td>
<td>791</td>
<td>386</td>
<td>670</td>
<td>516</td>
<td>1,084</td>
<td>2,146</td>
<td>3,517</td>
</tr>
<tr>
<td>HMO PPO</td>
<td>855</td>
<td>855</td>
<td>418</td>
<td>724</td>
<td>551</td>
<td>1,157</td>
<td>2,291</td>
<td>3,755</td>
</tr>
<tr>
<td>Commercial</td>
<td>23</td>
<td>23</td>
<td>11</td>
<td>19</td>
<td>21</td>
<td>45</td>
<td>89</td>
<td>146</td>
</tr>
<tr>
<td>Agency (RBHA) &amp; Grant</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Self Pay</td>
<td>4,951</td>
<td>4,951</td>
<td>2,418</td>
<td>4,194</td>
<td>(7,002)</td>
<td>6,088</td>
<td>12,055</td>
<td>19,757</td>
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<tr>
<td>Other</td>
<td>494</td>
<td>494</td>
<td>241</td>
<td>419</td>
<td>284</td>
<td>596</td>
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<tr>
<td>Total</td>
<td>12,901</td>
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<td>6,300</td>
<td>10,929</td>
<td>7,583</td>
<td>15,925</td>
<td>31,532</td>
<td>51,677</td>
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Then the net revenue by payer by visit amount:

<table>
<thead>
<tr>
<th>Incremental volume x payment per visit</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>FHC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AHCCCS - Non MP</td>
<td>116</td>
<td>116</td>
<td>116</td>
<td>116</td>
</tr>
<tr>
<td>AHCCCS - MP</td>
<td>119</td>
<td>119</td>
<td>119</td>
<td>119</td>
</tr>
<tr>
<td>Exchanges</td>
<td>116</td>
<td>116</td>
<td>116</td>
<td>116</td>
</tr>
<tr>
<td>Medicare</td>
<td>173</td>
<td>173</td>
<td>173</td>
<td>173</td>
</tr>
<tr>
<td>Medicare HMO</td>
<td>138</td>
<td>138</td>
<td>138</td>
<td>138</td>
</tr>
<tr>
<td>HMO PPO</td>
<td>214</td>
<td>214</td>
<td>214</td>
<td>214</td>
</tr>
<tr>
<td>Commercial</td>
<td>856</td>
<td>856</td>
<td>855</td>
<td>858</td>
</tr>
<tr>
<td>Agency (RBHA) &amp; Grant</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self Pay</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
</tr>
<tr>
<td>Other</td>
<td>107</td>
<td>107</td>
<td>246</td>
<td>246</td>
</tr>
<tr>
<td>Total</td>
<td>1,374,025</td>
<td>1,374,025</td>
<td>704,672</td>
<td>1,073,851</td>
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</tbody>
</table>

Then net revenue total (incremental volume x payment per visit):

<table>
<thead>
<tr>
<th>Incremental volume x payment per visit</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AHCCCS - Non MP</td>
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<td>Exchanges</td>
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<td>-</td>
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<td>-</td>
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<td>Medicare</td>
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<td>Agency (RBHA) &amp; Grant</td>
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<tr>
<td>Self Pay</td>
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<td>52,632</td>
<td>50,399</td>
<td>102,958</td>
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<tr>
<td>Total</td>
<td>1,374,025</td>
<td>1,374,025</td>
<td>704,672</td>
<td>1,073,851</td>
</tr>
</tbody>
</table>
Enhancing Operational Efficiencies:

By operating more efficiently in a right-sized network of clinical facilities, MIHS has the potential to reduce current costs by roughly $20 million a year.

In summary, an investment in new facilities is needed to retain the patients MIHS currently serves and convert them from self-pay to insured, serve growing community need, and operate more efficiently. While successfully implementing all three initiatives is expected to drive roughly $50 - $60 million per year in improved financial performance, failing to do so will likely result in net revenue declines as MIHS’ ability to serve emerging community need and operate efficiently further deteriorates.
IX. FINAL RECOMMENDATION TO THE BOARD OF DIRECTORS

Development of the Recommendation

Since March, 2013, the Bond Advisory Committee has met monthly with a charge to deliver a recommendation to the Maricopa County Special Health Care District Board of Directors by February 28, 2014, regarding the issuance of bonds or any other viable financing vehicle to fund proposed Maricopa Integrated Health System (MIHS) strategic capital projects, including the consideration of a bond election. To develop its recommendation, the Bond Advisory Committee has toured all MIHS facilities across the Valley; met with Navvis Healthways, consultants to the MIHS Board of Directors, to review the MIHS strategic plan; worked with an independent consultant, Kurt Salmon U.S., Inc., as facilitator of the committee process and for the provision of bond project expertise; thoughtfully considered healthcare industry trends; received a thorough assessment of the current state of MIHS facilities from industry experts Kurt Salmon; reviewed trends in healthcare design and facility construction; and, with the help of Kurt Salmon, considered multiple options for the various project investments. It is important to note that the Bond Advisory Committee focused on community need throughout its deliberations and considered new and creative solutions, rather than simply extrapolating forward from the current state.

The Bond Advisory Committee and its members have followed the Arizona Open Meeting Law and Public Records Act as per the administrative requirements of the Bond Advisory charter. Therefore, all meetings have been open to the public and recorded. Minutes of all meetings have been maintained. Materials presented at Bond Advisory Committee meetings are available on-line at www.mihsbondadvisory.org. The Bond Advisory Committee meetings have been well attended by members of the public.

The Bond Advisory Committee was also charged with obtaining public comment and community stakeholder input into the bond project and proposal deliberations. Therefore, the Bond Advisory Committee held five Town Halls, one in each hospital district, hosted by the district’s elected representative. The Town Halls were held on January 7th, 9th, 13th, 14th and 15th, at the Maricopa Medical Center hospital campus and the Sunnyslope, Chandler, Mesa and El Mirage MIHS Family Health Centers, respectively. Information regarding the Town Halls was advertised in the Arizona Republic, the Capitol Times and the Phoenix Business Journal, as well as posted on-line and promoted through Facebook. The five Town Hall meeting rooms were filled with attendees. Each Board member opened the Town Hall in his or her respective district. A brief video of MIHS President and CEO, Steve Purves, explaining the MIHS strategic plan and corresponding facility needs was shown. Bond Advisory Committee Chairman Bill Post facilitated the Town Hall discussions. There was no opposition expressed at the Town Halls. Chairman Post fielded numerous questions and received many comments regarding the value MIHS provides in our community.

Town Hall questions generally fell into one of five categories. These included the impact of the Affordable Care Act on MIHS; the assumptions underlying the proposed strategies; the specifics regarding the bond projects; likelihood of success regarding a bond ballot measure; and the risk to the community if these investments are not made. Town Hall comments received generally covered three topics. These included confirming
the need for expansion of the various planned services; citing the value of MIHS to the community today and in the future; and a willingness to provide support and assistance in a bond election to fund the strategic plan.

In addition to the Town Halls, MIHS CEO Steve Purves and Bond Advisory Committee Chairman Bill Post met one-to-one with more than 30 community leaders and stakeholders over the past few months. They received positive feedback regarding the essential role MIHS plays in our community and the investments needed to maintain its teaching and safety net mission. In summary, the Town Hall and stakeholder feedback validates the community need for MIHS’ safety net and teaching services and the corresponding capital investments required to meet that need.

The Recommendation

The Bond Advisory Committee understands and supports the MIHS 2013 - 2018 Strategic Plan approved by the Board of Directors last summer. The plan sets forth strategies to ensure MIHS fulfills its voter-mandated teaching and safety net mission. Specifically, the Strategic Plan describes a 21st century model for medical education and patient care that guarantees a much needed supply of future health professionals and improves access, quality, cost and outcomes for the residents of Maricopa County.

The Strategic Plan defines a clinical teaching and safety net healthcare network that requires investments in geographically distributed primary care and specialty ambulatory clinics, expanded behavioral health services, and replacement and right-sizing of the aging acute care hospital that will require fewer inpatient beds going forward. The goal of the clinical network is to create an integrated system that will improve Maricopa County residents’ access to care, advance the MIHS mission of medical education and clinical research, increase the supply of medical professionals available to care for the community, and enhance MIHS’ ability to deliver exceptional outcomes through a comprehensive, cost-effective and coordinated services continuum.

Following an objective assessment by independent facility experts, the Bond Advisory Committee has concluded that the current MIHS buildings are insufficient to implement the clinical network described in the Strategic Plan and over time, will erode MIHS’ ability to continue its voter-mandated mission. For decades, MIHS facilities and services have not kept pace with changes in care delivery, medical education, technology, nor the growth of the County population. Therefore, MIHS requires a substantial investment to meet current and future community needs for prevention and wellness, medical and emergency care, trauma and burn regional services, and behavioral health services. Moreover, MIHS must have a clinical environment conducive for training the thousands of medical professionals it attracts each year.

It is the recommendation of the Bond Advisory Committee that the Special Health Care District Board of Directors exercise their legislative authority to issue General Obligation Bonds in an amount not to exceed $935 million for the financing of strategic capital projects. The Bond Advisory Committee has reviewed the proposed strategic capital projects and agrees that significant facility investments must be made to ensure MIHS sustain its mission critical role today and in the future. The strategic capital projects comprise a portfolio of investments that in total may require up to $935 million of funding. The Bond Advisory Committee recommends that a not to exceed amount of $935 million be available to the Board of Directors as a future funding stream. The Bond Advisory Committee also recommends that such funds should be
accessed only after cost effective solutions have been identified which generate the best value for each project and the tax payer impact has been minimized to the extent feasible.

The Bond Advisory Committee is making the following seven recommendations.

1. Grow Medical Education
2. Expand the Outpatient Health Centers
3. Increase Behavioral Health Capacity
4. Replace and Right-Size the Public Teaching Hospital
5. Complete an Economic Impact Study
6. Develop a Bond Proposal and a Bond Communication Plan
7. Create a Collaborative Community Stakeholder Engagement Plan and Partnerships

**Recommendation #1: Grow Medical Education**

The Bond Advisory Committee recommends that investments in MIHS healthcare delivery models and facilities also include strategies to address the critical and growing shortage of medical professionals in Arizona. Today, Arizona ranks 43rd out of 50 states for the number of active patient care primary care physicians per 100,000 population, falling well below the national concentration. According to the Association of American Medical Colleges, by 2025, the U.S. healthcare sector will face a national shortage of more than 130,000 physicians. A growing and aging population, the rise of chronic diseases, and the expansion of health coverage contained in the federal healthcare reform law are driving increasing demand for healthcare professionals, and Arizona is already critically behind.

Over the past decade, consumers, healthcare professionals, insurers, policy-makers, employers, regulators and elected officials have recognized that every effort must be made to define the value of health care, not just the cost of medical services, and that the value equation must measure accessibility and quality of outcomes as well as dollars spent. There is growing consensus that the country needs a seamless, value-oriented system that offers affordable health care to all Americans.

Looking through the crystal ball, healthcare thought leaders seem to agree that the future of medicine will include a new health model in which there are fewer acute care hospitals and more disease prevention and primary care health centers that include far more than doctors’ offices. With the advent of personalized and predictive medicine, people will be treated before the onset of disease, avoiding hospitalization altogether.
Specialized hospitals will bring together the best doctors and equipment to combat specific diseases. In the future, people will require less hospitalization, and will be able to be treated where they want to be: at home. In cases where hospitalization is required, patients will be hospitalized in specialized facilities with far better outcomes.

As a full continuum of community healthcare services, the Bond Advisory Committee understands MIHS offers exactly the kind of model required for the future of medicine. MIHS provides a system of coordinated care that includes prevention and education programs, primary and specialty care clinics, behavioral health hospitals, regional burn and trauma centers, emergency and hospital services, a health insurance company, and an integrated medical group that cares for patients across a geographic network of services. Managing care across this integrated system of services improves outcomes, access, and costs for the populations served.

The Bond Advisory Committee recognizes the tremendous value MIHS can offer to medical education. The teaching and training of physicians, nurses, pharmacists and allied health professionals that occurs at MIHS in multi-disciplinary teams across the comprehensive continuum of care is unmatched in Maricopa County. In this manner, healthcare professional training can occur in an environment where care is organized around the needs of patients and technology is used to deliver better care, improved outcomes and lower costs. Hence, the Bond Advisory Committee strongly recommends that capital bond investments made in MIHS facilities be leveraged to grow medical education capacity in the community. This will enable an increasing number of tomorrow’s professionals to be trained in the new, modern 21st century health system of care.

The Bond Advisory Committee notes that although primary care is critical to promoting health, improving care and reducing overall system costs, it has been historically underfunded and under-valued in the United States. As a result, not enough healthcare professionals are in place to meet existing demands for services and the number of primary care practitioners is rapidly declining. A primary care practice is a key point of contact for patients' healthcare needs. Growing medical education capacity should include strategies to strengthen primary care by expanding the role of non-physician members of the primary care workforce, improving care coordination, making it easier for clinicians to work together, and helping clinicians spend more time with their patients.

The Bond Advisory Committee recommends that MIHS collaborate with other hospital systems, healthcare professionals and medical education institutions to increase the community supply of physicians, nurses and allied health professionals. In particular, the Bond Advisory Committee recommends that MIHS leverage its public teaching hospital status to access potential sources of funding and work collaboratively with other healthcare organizations to explore solutions for sustaining and growing the number of graduate medical education residencies and fellowships in Maricopa County. Today, Maricopa County hospitals are unable to meet current medical student demands for graduate medical education residencies. Growing the number of graduate medical education residencies available in the community would be highly beneficial to increasing future Arizona physician supply because 70% of physicians remain to establish medical practices in the communities in which they complete their medical residency training. In addition to ensuring the supply of physicians to care for our community, increasing the supply of medical professionals adds higher wage jobs to the Arizona economy and attracts other medical and bioscience industry businesses to the State.
Recommendation #2: Expand the Outpatient Health Centers

The Bond Advisory Committee acknowledges that MIHS offers an affordable network of outpatient health centers across Maricopa County that is the front line of defense for keeping people well, managing chronic illness, and providing care cost-effectively. The health centers provide primary and preventive services to at-risk and underserved populations whose only alternative for care is the emergency room. Unfortunately, the Family Health Centers which were inherited by the District from the County are undersized, outdated and not in locations that correspond to emerging community needs. The Family Health Centers require substantial renovation and expansion to create an outpatient clinical network that improves access and patient throughput; provides an appropriate environment for medical training; and serves the needs of the community. This enhanced capacity will reduce wait times, improve access to specialists, and avoid overuse of hospital emergency departments. Investing in Family Health Centers also creates a laboratory for the training of medical professionals. As our nation’s healthcare system puts increased emphasis on delivering care in the most cost-effective setting, the demand for coordinated care practices will grow. The Family Health Centers provide an environment and patient populations for training teams of healthcare professionals. Primary care physicians, specialists, behavioral health practitioners, physician’s assistants, nurse practitioners, and other such healthcare professionals can work together to deliver care with improved outcomes and lower costs. Technology will facilitate improved communication among team members and with patients.

Similarly, the Bond Advisory Committee recommends renovation and expansion of the outpatient specialty services across Maricopa County. The MIHS Comprehensive Health Center in Central Phoenix offers both primary and specialty outpatient services, and is an effective model for delivering quality, efficient care outside the hospital. The facility, however, requires several building system upgrades as well as additional patient exam rooms. Furthermore, as the Maricopa County population has grown, the need for these kinds of specialty services in the East Valley and West Valley has increased, and the Phoenix Comprehensive Health Center is simply too far from the populations who need it. Therefore, the Bond Advisory Committee is recommending the construction of additional Comprehensive Health Centers to provide accessible and affordable outpatient specialty services to the East Valley and West Valley residents of Maricopa County.

The Bond Advisory Committee supports the MIHS strategy to connect Family Health Centers and Comprehensive Health Centers with other healthcare professionals, healthcare organizations, hospitals and agencies in their respective geographic markets so that patients receive convenient and coordinated care close to where they live and work. The return on investment of a public teaching hospital and health system is maximized when community services are integrated in a market rather than duplicated. By partnering with local healthcare organizations and professionals, MIHS will ensure the community receives the greatest value for the outpatient health center investments.

Of note, on Wednesday, February 5, 2014, the governing body which has oversight responsibility for the Family Health Centers voted to support the MIHS strategic plan and corresponding capital projects at their Maricopa County Family Health Centers Governing Council meeting.
Recommendation #3: Increase Behavioral Health Capacity

The Bond Advisory Committee recognizes gaps in access to behavioral health services in Maricopa County. Lack of access to behavioral services drives up emergency room utilization and costs for schools, law enforcement, other health systems and hospitals, and employers. The community demand for additional and well managed behavioral health services is at an all-time high. The current MIHS behavioral health facilities are at capacity and cannot meet current community need, much less growing future needs. The facilities are functionally ineffective and offer little to no options for expansion.

Therefore, the Bond Advisory Committee recommends increasing inpatient bed capacity for MIHS behavioral health care to meet the glaring need in the community for more mental health and substance abuse services. Additionally, the Bond Advisory Committee supports the consideration of consolidating MIHS inpatient behavioral health capacity on a single campus to enable better care for patients and enhanced service to families. The Committee understands opportunities exist to generate operational efficiencies and savings by constructing one new facility rather than adding fragmented capacity to multiple facilities.

Additionally, the Bond Advisory Committee supports the expansion and integration of behavioral health services into the MIHS Family Health Centers and Comprehensive Health Centers to better service residents across Maricopa County. The Bond Advisory Committee encourages MIHS to continue its industry leading accomplishments in integrating medical and behavioral health services via community-based primary care medical homes, particularly in the additional outpatient health center investments envisioned.

Lastly, the Committee reviewed various viable options for constructing an inpatient behavioral health hospital on the existing Maricopa Medical Center campus as well as on a green field site. The Committee recommends that due diligence be conducted once funding is secured to determine the most cost-effective behavioral health solution for ensuring that Maricopa County residents have access to the best and appropriate levels of care and mental health services.

Recommendation #4: Replace and Right-Size the Public Teaching Hospital

The Bond Advisory Committee recommends the replacement and right-sizing of the obsolete public teaching hospital, Maricopa Medical Center, effectively reducing the number of inpatient beds, creating a contemporary environment and increasing the flexibility of the hospital for the future as medicine evolves. Constructed more than 40 years ago, Maricopa Medical Center has reached the end of its useful life. Changing community needs and care models have rendered it functionally obsolete and very costly to operate. The facility design is not suitable for team-based care models, advanced technologies, teaching and training requirements, and the acuity of patients today. The current facility configuration makes renovation cost-prohibitive and unable to meet today’s medical training and patient care expectations.
There is adequate space on the existing hospital campus for a replacement facility. Viable options exist for siting a replacement hospital on the campus with convenient access for patients and staff, good separation of service zones and vehicular traffic, and continued use of existing support structures such as the warehouse and power plant.

A new hospital will enable MIHS to train medical professionals in a team-based and technology-enabled environment, as well as improve the care of patients, particularly those who need specialty intensive care, trauma and burn services. Significant research and evidence exists on how organization, culture and environment can impact innovation. In particular, facility and campus design can have a major impact on breaking down the organizational, cultural and physical silos that are inherent with any complex campus or organizational structure. The recommendation is to construct a new inpatient teaching hospital which will provide a higher integration of patient care, medical education and clinical research, significantly improving how healthcare is delivered and creating a model for teaching health systems across the country. Efficiencies gained in the design of the hospital, coupled with an expanded community network of increased ambulatory and behavioral health capacity, will reduce the number of acute care beds required in the replacement teaching hospital.

**Recommendation #5: Complete an Economic Impact Study**

The Bond Advisory Committee recommends the completion of an economic impact study to quantify the value that MIHS brings to our community today as well as the additional value MIHS will generate by implementing the bond project recommendations. The Bond Advisory Committee believe that MIHS contributes significant economic value today on several fronts, namely as a major employer representing more than 3,000 employees; as a safety net health system that fills gaps in care for the working poor and medically underserved; and as a public teaching hospital that provides clinical training for thousands of doctors, nurses and allied health professionals each year. Additionally, there will be considerable economic value provided in the local economy from the creation of construction industry jobs and the associated spending that would result from it.

The Bond Advisory Committee believes constructing a new and robust MIHS clinical network will add significant benefit to the community’s bioscience efforts. The Bioscience Roadmap commissioned by the Flinn Foundation concluded that Arizona possesses many of the essential elements needed to become a global leader in the biosciences, but must strengthen its biomedical-research base and build a critical mass of bioscience firms and jobs. The study outlines a 10-year roadmap that puts Arizona on a path to achieving national bioscience stature and a diversified economy. The findings describe the need for increased public and private sector investments plus collaboration among Arizona's higher education, industry, and nonprofit sectors.

Investments in the MIHS clinical network will enable Arizona to attract more individuals interested in an advanced clinical and scientific training experience. Physicians, scientists, biotech researchers and students working in and considering the medical and bioscience professions will view the opportunities offered through the MIHS clinical network favorably. Arizona will likely retain more professionals post-training because of the growing scientific community.
Investments in healthcare offer Arizona an opportunity to establish a high-wage, technology-driven employment base of highly skilled workers that brings stability to the state's economy by balancing more cyclical industries. The challenge is for Arizona to 'catch-up' to other states that have already made substantial investments.

A community investment in the MIHS clinical network vision will provide significant momentum toward ‘catching up’. The not-so-secret key to Arizona’s success thus far has been collaboration among institutions, including colleges and universities, clinical organizations, research institutes, government, and industry. Expanding these partnerships will help move discoveries rapidly from the laboratory into patient care, accelerate the translation of new discoveries into commercial products and services, and strengthen Arizona’s financial viability through times of continuing economic instability.

Currently, there is growing community support for investments of the scope and scale described in the MIHS vision. Community leaders and stakeholders with whom the MIHS Strategic Plan has been shared have expressed enthusiasm and support for the patient care and medical education investments. These advancements in healthcare and clinical training will greatly contribute to the state’s biomedical capacity and bolster a recovering economy.

**Recommendation #6: Develop a Bond Proposal and a Bond Communication Plan**

The Bond Advisory Committee is recommending that the Special Health Care District Board of Directors develop a proposal for a bond initiative in an amount not to exceed $935 million, submitted for voter approval on the November 2014 ballot. A not to exceed $935 million ballot measure will ensure adequate funding to make the necessary capital investments in outpatient health centers, behavioral health capacity, and the replacement and right-sizing of the public teaching hospital. The Bond Advisory Committee is recommending the bond projects are presented to voters as one, comprehensive initiative because the capital projects are interconnected and strategically linked to the organization’s ability to accomplish its voter-mandated medical education and safety net mission. Additionally, the Bond Advisory Committee consultants have developed an analysis regarding bond financing of the capital projects which should be included in the bond proposal.

Upon voter approval, the Bond Advisory Committee recommends that the Board of Directors complete project-specific due diligence to value engineer the most cost-effective solution for each proposed investment. This will ensure bond funding is utilized most judiciously, providing tax payers with the greatest value for their community investment.

The Bond Advisory Committee is also recommending the development of a bond communication plan that details strategies for sharing the MIHS story, its value to our community, the capital required to implement the Strategic Plan, and the investment return our community will receive from supporting the bond projects. The story should address the economic impact to Maricopa County of the capital investments, the improved health of the community, and the benefit to all of having a vibrant public teaching hospital and health system of care. The Committee
believes the MIHS story and legacy is significant and relevant to every member of our community, whether they directly utilize its safety net healthcare services or not. Therefore, the Committee is recommending a bond communications strategy be developed to convey and demonstrate how the bond election touches everyone in Maricopa County.

**Recommendation #7: Create a Collaborative Community Stakeholder Engagement Plan and Partnerships**

The Bond Advisory Committee is recommending the creation of a community stakeholder engagement plan. In anticipation of a successful bond election, the purpose of the engagement plan is to devise a framework for ensuring stakeholder involvement going forward. The Bond Advisory Committee has worked to ensure transparency in its deliberations and suggests that execution of bond projects should similarly do the same. Additionally, the valuable feedback received from recent community leader meetings and Town Halls suggests that even greater value can accrue by engaging other healthcare organizations and professionals, community agencies, businesses, civic leaders and consumers in the implementation process and execution of specific bond projects. The Bond Advisory Committee suggests that MIHS Board of Directors and senior leadership remain flexible regarding the capital project plans during the implementation phase of work so that these types of creative collaborations and partnerships can indeed occur for the benefit of all.
X.  GLOSSARY OF TERMS

Acute care
Health services designed to meet the needs of patients requiring short-term care for a period of 30 days or less.

Affordable Care Act
The Patient Protection and Affordable Care Act commonly called the Affordable Care Act (ACA) is a United States federal statute signed into law by President Barack Obama on March 23, 2010. The ACA was enacted with the goals of increasing the quality and affordability of health insurance, lowering the uninsured rate by expanding public and private insurance coverage, and reducing the costs of healthcare for individuals and the government.

Allied health professionals
Healthcare professionals distinct from nursing, medicine and pharmacy who work in healthcare teams to make the healthcare system function by providing a range of diagnostic, technical, therapeutic and direct patient care and support services that are critical to the other health professionals they work with and the patients they serve (e.g., physical therapists, dietitians).

Ambulatory care
Healthcare services that do not require overnight or inpatient care.

Behavioral health
A general term now commonly used in place of the older term “mental health”.

Bioscience industry
Any of the branches of natural science dealing with the structure and behavior of living organisms. The bioscience industry includes agriculture, drugs and pharmaceuticals, medical devices and instruments, hospitals and laboratories, and research and testing.

Capital expenditure
An expenditure that benefits more than one fiscal accounting period; a cost to acquire a long-term asset (e.g., a hospital).

Clinical integration
An active and ongoing program to evaluate and modify the clinical practice patterns of the health professional participants so as to create a high degree of interdependence and collaboration among the professionals to control costs and ensure quality.
Clinical research
A branch of healthcare science that determines the safety and effectiveness of medications, devices, diagnostic products and treatment regimens intended for human use. Research findings may be used for prevention, treatment, diagnosis or for relieving symptoms of a disease.

Clinical rotations
A period in which a medical student, post-graduate or graduate medical education resident in the clinical part of his/her education spends time training at various healthcare services.

Clinicians
A person, such as a doctor or nurse, who works directly with patients rather than in a laboratory or as a researcher.

Co-morbid conditions
In medicine, the term co-morbid can be either medical condition(s) existing simultaneously but independently with another condition; or it can indicate a related medical condition or conditions (e.g., arthritis and diabetes).

Continuum of care
An integrated system of care that guides and tracks patient over time through a comprehensive array of health services spanning all levels of intensity of care.

Coordinated care
Process of managing all of a patient's needs among healthcare professionals and across healthcare settings.

Economic impact study
Attempts to measure or estimate the change in economic activity in a specified region, caused by a specific business, organization, policy, program, project, activity, or other economic event.

Federally qualified health system
Organizations receiving grants under Section 330 of the Public Health Service Act. They serve an underserved area or population, offer a sliding fee scale, and qualify for enhanced reimbursement from Medicare and Medicaid.

Graduate medical education
Formal medical education, usually hospital-sponsored or hospital-based training, pursued after receipt of MD, DO, DPM, DDS degrees in the United States. This education includes internship, residency, subspecialty and fellowship programs, and leads to board certification.
Health system
A corporate body that owns and/or manages hospitals and other health-related subsidiaries (e.g., home health, hospice).

High risk populations
Groups of people that have higher than expected prevalence for developing disease when compared to the general population which may be defined on a measurable parameter such as an inherited genetic defect, physical attribute, lifestyle, habit, socioeconomic and/or educational feature, as well as environment.

Integrated delivery system
A regional healthcare network or system providing a large range of services (a continuum of care from acute care and outpatient ambulatory care to skilled nursing and long-term care) to a defined patient population within a certain geographical area.

Integrated multi-specialty medical group
Physicians representing two or more medical specialties who work together in a group practice setting and generally share profits, equipment, facilities, personnel and office expenses.

Inter-professional teams
Clinicians in multiple health disciplines with diverse knowledge and skills who share a set of goals and who utilize interdependent collaboration that involves communication, sharing of knowledge and coordination of services to care for patients.

Medical home
A team-based healthcare delivery model led by a physician, physician’s assistant or nurse practitioner and others that provides comprehensive and continuous medical care to patients with the goal of obtaining maximized health outcomes.

Medically indigent/underserved
A term used in the healthcare sector to describe those who do not have and cannot afford insurance coverage.

Non-emergent needs
A situation that does not require immediate action with regard to a person’s health and for the most part, no special equipment.

Population health model
An approach to health that aims to improve the health of an entire human population.
Primary care
Basic medical care, including preventive services, provided on a regular basis to individuals, typically in a doctor’s office.

Public teaching hospital
A government owned hospital that has highly trained specialized staff, equipment and services able to safely care for patients with the most complex or life threatening conditions; that conducts formal educational programs or courses of instruction that lead to granting of recognized certificates, diplomas, or degrees, or that are required for professional certification or licensure; and that has significant health and medical research programs.

Residency programs
Advanced medical training and education programs that normally follows graduation from medical school and licensing to practice medicine and that consists of supervised practice of a specialty in a hospital and outpatient departments and instruction from specialists on the hospital staff. Also referred to as graduate medical education.

Safety net hospital
By legal mandate or explicitly adopted mission, safety net hospitals maintain an “open door,” offering patients access to services regardless of their ability to pay, and a substantial share of their patient mix is uninsured, Medicaid, and other vulnerable patients.

Specialty care
Care provided by physicians and medical professionals whose training focused primarily in a specific field, such as neurology, cardiology, rheumatology, dermatology, oncology, orthopedics, ophthalmology, and other specialized fields.

Uncompensated care
An overall measure of hospital care provided for which no payment was received from the patient, insuror, or other such payment source.

Underinsured
People who have some form of health insurance, but lack the financial protection needed to cover out-of-pocket medical care expenses, thereby inhibiting their ability to access needed medical services.
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<th>Slide #</th>
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<td>19 – 35</td>
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<td>36 – 71</td>
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<td>V. Facility Development Options</td>
<td>72 – 99</td>
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</tbody>
</table>
Work Steps

The project consisted of four phases of work.
### Process Review: Integration with Strategic Plan

#### Strategic Plan:
- **Stage 1:** Assessment / Exploration
- **Stage 2:** Clinical Network Development
- **Stage 3:** Strategic Financial Plan

#### Bonding Plan:
- **Stage 1:** Project Org / Fact Gathering
- **Stage 2:** Assessment
- **Stage 3:** Sensitivity/Implications
- **Stage 4:** Bond Prep / Communication

#### BAC Meeting Topics / Deliverables:
- **Process / Scope**
- **Trends / Implications**
- **Review Guiding Principles**
- **Strategic Plan Stage 1 Update**
- **Strategic Facility Implications**
- **Facility Condition Assessment**
- **Situation Assessment Update**
- **Strategic Situation Assessment**
- **Clinical Network Assessment**
- **Future facility Needs Projection**
- **Sensitivity Analysis**
- **Capital needs assessment**
- **Financial projections**
- **Bond packaging (if required)**
- **Communications planning**
Thoughts on the Future

Fact: We don’t know what will happen.

Fact: Many past predictions have been proven wrong.

Fact: There are some trends that are fairly robust, and suggest a potential direction.

Fact: MIHS will have to make many key decisions in the face of incomplete information.
A Few Facts...

1. U.S. spending patterns are not sustainable; we are a “sick care” system, not a “health care” system

National U.S. Health Expenditures per Person...

- 1960: $1,066
- 2009: $8,047
- 2018 projected: $13,100

... and as a % of GDP

- 1960: 5.4%
- 2009: 16.9%
- 2018 projected: 20.3%


» On its own, U.S. health care (~$2.6T) is the fifth largest economy in the world
» U.S. health care metrics are not among the best internationally
  - Life expectancy ranked in the bottom 10 out of 30 OECD countries
  - Infant mortality ranked in the bottom 10 out of 30 OECD countries
A Few Facts...

2. Hospitals and physician services have represented more than 50% of the increase in per capita healthcare cost over the past decade

![Bar chart showing percentage and cost of healthcare spending]

Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at http://cms.gov/NationalHealthExpendData

» Hospital and physician practice patterns generally reflect society’s expectations
» Reimbursement, regulatory and litigation environment prevent change
A Few Facts...

3. 5% of patients are responsible for 50% of health care spending

Distribution of Beneficiary Population

- 50%
- 20%
- 5%
- 1%

Distribution of Health Spending

- 81% of total costs come from 20% of population
- 51% of total costs come from 5% of population
- 26% of total costs come from 1% of population

A Few Facts...

4. Our current payment models are not sustainable
Some Trends that We Can Extrapolate

1. Chronicity and co-morbidities are likely to drive increased healthcare demand over the next decade, even if utilization is managed and “waste” is eliminated.

<table>
<thead>
<tr>
<th>Population growth</th>
<th>Arizona’s population growing by 1.3+% annually, nearly double that of the national average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronicity</td>
<td>14.2% of Arizona’s residents above the age of 65, compared to 13.3% nationally</td>
</tr>
<tr>
<td>Access to Care</td>
<td>18% of Arizona residents are uninsured, compared to 16% nationally</td>
</tr>
<tr>
<td>Health Status</td>
<td>Arizona ranked 25th in the United Health Foundation’s 2012 health status rankings</td>
</tr>
<tr>
<td>Technology/Science/Rx</td>
<td></td>
</tr>
<tr>
<td>New disease</td>
<td></td>
</tr>
</tbody>
</table>

*Net impact*  More Demand for Health Care Services
Some Trends that We Can Extrapolate

2. The funding for reform includes provider payment cuts, but the gap between supply and demand for most health professionals suggests there may not be a significant drop in “per unit” labor cost.

![Projected Growth (indexed)](image)

- Estimated Physician Shortfall in 2015: More than 50,000
- U.S. Population Age 65+
- Total U.S. Population
- Physicians

Source: AAMC, New York Times, HFMA
Some Trends that We Can Extrapolate

3. Funding sources for public hospitals are expected to deteriorate, which will force systems to identify alternative funding sources or cut overall expenditures.

NAPH Hospital Sources of Financing

- Medicaid DSH, 22%
- Supplemental Medicaid Payments, 15%
- Medicare DSH, 5%
- State/Local Payments, 32%
- Other, 21%
- Commercial, IME, 4%

NAPH Hospital Margins

- All Hospitals: -5.5%
- NAPH Hospitals: -11.7%
- NAPH Hospitals w/o Medicaid DSH: 5.0%
- NAPH Hospitals w/o DSH or UPL: 2.5%
Some Trends that We Can Extrapolate

4. Being in a capital-intensive sector with a relatively poor history of asset utilization has caused many institutions to defer investment to the fixed asset base.

2009-2010 Return on Asset Metrics by Industry Sector

- Medical Products and Equipment: 13.1%
- Pharmaceuticals: 11.5%
- Food Services: 11.4%
- Oil and Gas Equipment, Services: 10.1%
- Household and Personal Products: 9.6%
- Electronics, Electrical Equipment: 8.6%
- Internet Services and Retailing: 8.3%
- Aerospace and Defense: 8.1%
- Petroleum Refining: 7%
- Railroads: 6.7%
- Chemicals: 5.8%
- Engineering, Construction: 5.5%
- Wholesalers: Health Care: 5.3%
- Utilities: Gas, and Electric: 4.8%
- Health Care, Medical Facilities: 3.9%
- Health Care, Insurance and Managed Care: 2.9%
- TEACHING HOSPITALS: 2.8%
- Others: 1.1%

Return on asset data for all industry sectors based on 2009 Fortune 500 information.
Academic Medical Center (AMC) ROA calculation based on an average of data from 40 AMCs across the country, pulled from 990s posted to GuideStar.
Some Trends that We Can Extrapolate

5. Yet the average age of plant for hospitals across the country is now close to ten years, and many facilities are no longer considered contemporary.

Hospital Average Age of Plant

HUGE INVESTMENT NEEDED TO STABILIZE AAP TRAJECTORY

Some Trends that We Can Extrapolate

6. Historical reimbursement favored high complexity care, which is where teaching hospital investments (i.e., talent, facilities, technology) have been concentrated.

<table>
<thead>
<tr>
<th>Illustrative Teaching Hospital</th>
<th>BASIC</th>
<th>MODERATE</th>
<th>HIGH</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharges</td>
<td>11,191 (54.1%)</td>
<td>7,990 (38.9%)</td>
<td>1,379 (6.7%)</td>
<td>20,560</td>
</tr>
<tr>
<td>Average Daily Census</td>
<td>85.1 (26.4%)</td>
<td>149.0 (46.1%)</td>
<td>88.8 (27.5%)</td>
<td>322.8</td>
</tr>
<tr>
<td>ALOS</td>
<td>2.8</td>
<td>6.8</td>
<td>23.5</td>
<td>5.7</td>
</tr>
<tr>
<td>% admits from referral/scheduled</td>
<td>51.5%</td>
<td>42.7%</td>
<td>22.4%</td>
<td>46.1%</td>
</tr>
<tr>
<td>% admits from ED/walk-in</td>
<td>45.6%</td>
<td>49.4%</td>
<td>54.7%</td>
<td>47.7%</td>
</tr>
<tr>
<td>% admits as transfers</td>
<td>2.8%</td>
<td>7.7%</td>
<td>22.6%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Total Net Patient Revenue</td>
<td>$38.4M</td>
<td>$83.6M</td>
<td>$71.3M</td>
<td>$193.4M</td>
</tr>
<tr>
<td>Direct Costs per Discharge</td>
<td>$3,731</td>
<td>$10,673</td>
<td>$50,300</td>
<td>$9,567</td>
</tr>
<tr>
<td>Direct Costs per Patient Day</td>
<td>$1,338</td>
<td>$1,568</td>
<td>$2,140</td>
<td>$1,665</td>
</tr>
<tr>
<td>CM per Discharge</td>
<td>($69)</td>
<td>$422</td>
<td>$4,485</td>
<td>$427</td>
</tr>
<tr>
<td>CM per Patient Day</td>
<td>($25)</td>
<td>$62</td>
<td>$191</td>
<td>$75</td>
</tr>
<tr>
<td>Percent Medicare</td>
<td>15.2%</td>
<td>27.2%</td>
<td>26.5%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Percent Medicaid</td>
<td>29.0%</td>
<td>17.4%</td>
<td>18.0%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Percent Commercial</td>
<td>25.2%</td>
<td>28.1%</td>
<td>29.0%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Percent Self-Pay</td>
<td>17.6%</td>
<td>17.3%</td>
<td>15.5%</td>
<td>17.3%</td>
</tr>
<tr>
<td>Percent Other</td>
<td>13.1%</td>
<td>10.1%</td>
<td>11.0%</td>
<td>11.8%</td>
</tr>
</tbody>
</table>
Some Trends that We Can Extrapolate

7. But if the reimbursement model shifts towards more of a value-based, population health paradigm, then the emphasis will have to shift to managing patients outside the traditional acute care episode.
Some Trends that We Can Extrapolate

8. Managing patients across a continuum will entail a series of build vs. buy vs. partner decisions, and impacts availability of capital for hospital and ambulatory investment.
Some Trends that We Can Extrapolate

9. As care delivery shifts, and patients become more responsible for their healthcare spending, reputation will no longer serve as a proxy for quality.

Value \( V \) = Quality \( Q \) \times Service \( S \) / Cost \( C \)

**TRADITIONAL THINKING**

- **Cost Reduction:** Cutting costs at the expense of quality/service
- **Quality/Service Enhancement:** Adding costs to improve quality/service

**FUTURE EMPHASIS**

- **Value Opportunity**
  - **Innovation:** Improvement in all dimensions (order sets, integrated IT, Lean culture)
  - **Effectiveness:** Improved quality/service at the same cost (standardized pre-op antibiotics, interdisciplinary rounding)
  - **Efficiency:** Cutting costs and improving throughput without impacting quality/service (flex staffing, JIT inventory)
Some Trends that We Can Extrapolate

10. Health systems will begin to coalesce around one of two overarching strategies, with major implications for the future allocation of capital

1. **Own/Control all the elements of an integrated delivery system, with the primary objective of managing the health of a population**
   - Ability to bear risk through health plan ownership
   - Broader employment discussions to expand the physician network
   - Investment in care continuum assets (pre- and post-acute)
   - Dramatic expansion of the asset base

2. **Differentiate as the highest-value tertiary/quaternary acute care provider in the region, and partner with multiple other integrated delivery systems**
   - Divestiture of clinical components that don’t support the core competency
   - Partnerships with other children’s providers along the continuum
   - Focused IT investments on tracking and demonstrating value (quality, service and cost metrics)
   - Maximize use of the existing asset base
Maricopa Integrated Health System

Strategy Priorities

- Exercise Prudent Stewardship of Public Resources
- Build an Integrative Academic Campus (New MMC)
- Build a Network of Ambulatory Sites
- Expand Behavioral Health Capacity to Meet Community Need
- Grow the Number of Lives Managed
- Advance Initiatives to Improve Community Health

Public Teaching Hospital and Health Care System
Mission/Vision

**Mission Statement**

Maricopa Integrated Health System (MIHS) is Maricopa County’s only public teaching hospital and health care system. We are committed to providing safe, comprehensive, high-quality physical and behavioral health care in a patient-centric environment to the communities we serve; and expanding the community’s available pool of physicians and other health care professionals by offering excellent academic programs.

**Vision Statement**

MIHS will be recognized locally and nationally as an effective, efficient, and fiscally responsible organization that maintains an integrated, high quality, patient-centric health care delivery system and an excellent academic medical center.
Aligning Our Network to Our Vision

Our vision is to organize a clinical network to design and deploy systems of care around the needs of patients and evidence-based care standards, with a goal of improving health outcomes, better managing costs, and improving the patient experience.

As we think about designing and deploying that clinical network, our strategies and resource allocations will be informed by the answers to the following:

1. Where is there unmet need or emerging demand in the community?

2. If our goal is to improve health outcomes and to better manage costs, what services must we organize and provide?

3. If the success of our brand and business strategy is to improve the patient care experience, how should we configure and organize our care sites and where specifically should they be located?
Emerging Market Dynamics

Critical Trends that Will Shape our Strategy

• Demand for care in Maricopa County will continue to increase, especially in the southwest (15.1%) and northeast (9.0%) valley and away from Maricopa Medical Center’s primary service area.

• Demand will grow for adult primary and urgent care, pediatrics, orthopedics, cardiac medicine, and behavioral health – and will be in office-based and ambulatory care settings, not hospitals.

• Payors will increasingly reward care models that destroy inpatient demand. Hospitals will struggle to maintain inpatient volume and margin, and compete aggressively for inpatient specialty volumes.

• Expanded access to insurance coverage (AHCCCS, insurance exchanges) will mean more people have coverage but not necessarily care, as the primary care shortage worsens.

Inpatient market share will be a less reliable indicator of success, impact and sustainability than total lives managed in risk-arrangements.
New Competitive Realities

Shift from Inpatient Focus to Ambulatory Brand


• MIHS will need to decouple its primary and ambulatory care strategies from a goal of driving demand from the secondary markets into Maricopa Medical Center and/or the Comprehensive Care Center.

• This shift in strategy enables MIHS to rethink MMC as an integrative public teaching hospital focused on care delivery, health science research and systems-based training in primary care and population health management.

• MIHS will need to shift its business and brand strategies away from a hospital-centered focus to a network of convenient non-hospital care.

Hospital beds and specialty care are increasingly commoditized; new value will be created by efficient and effective outcomes and cost management.
Physician Network Analysis

Opportunity and Imperative to Partner with Primary Care Across all Markets

• Employment of physicians by systems in the market has not translated into tight alignment for purposes of referral network management. There is a significant cohort of non-DMG primary care physicians whose patients end up “down-stream” seeing a DMG specialist.

• There are a sizable number of patients who are seen by a physician in the FHC who are shared with specialists from other systems. The data suggests an opportunity to improve continuity of care by having dedicated specialists at ambulatory sites in critical northwest and southeast markets. This strategy does not presume capture of patients for inpatient care at MMC.

• There are a significant number of DMG-aligned specialists who could generate additional patient volume and revenue if they had referral options for follow-up care in the secondary service area and emerging markets. These referral options would be to programs, services, and physicians located in network ambulatory care sites.

MIHS should utilize its clinically integrated network as the platform for aligning with primary care providers in the emerging geographic markets.
# Growth Outside the MMC PSA

## 2012 – 2017 Current Year Estimates & Five Year Projections

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SE Valley</td>
<td>1,226,412</td>
<td>7.0%</td>
<td>11%</td>
<td>428,110</td>
<td>$58,709</td>
<td>33</td>
</tr>
<tr>
<td>Phoenix</td>
<td>1,159,132</td>
<td>3.3%</td>
<td>9%</td>
<td>420,143</td>
<td>$48,130</td>
<td>34</td>
</tr>
<tr>
<td>NW Valley</td>
<td>787,360</td>
<td>9.0%</td>
<td>20%</td>
<td>272,789</td>
<td>$55,054</td>
<td>40</td>
</tr>
<tr>
<td>SW Valley</td>
<td>627,265</td>
<td>15.1%</td>
<td>8%</td>
<td>155,887</td>
<td>$51,588</td>
<td>31</td>
</tr>
<tr>
<td>NE Valley</td>
<td>368,375</td>
<td>4.5%</td>
<td>16%</td>
<td>158,447</td>
<td>$76,367</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,168,544</strong></td>
<td><strong>7.2%</strong></td>
<td><strong>12%</strong></td>
<td><strong>1,435,376</strong></td>
<td><strong>$56,094</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

Source: Census Bureau; Thompson Reuters

Demographic characteristics by market area indicate that the:
- SE Valley market will have the largest population and number of households
- SW Valley market will grow the fastest, will have the youngest median age and lowest percent of its population in the Medicare aged cohort
  - NE Valley market will have the highest median household income and oldest median age
  - Phoenix market will experience the slowest growth and the lowest median household income
  - NW Valley market will have the highest percent of its population in the Medicare aged cohort
Growth in the Ambulatory Market

2012 – 2017 Aggregate Outpatient Size & Growth Projections for Maricopa County

<table>
<thead>
<tr>
<th>MIHS Market Areas</th>
<th>2012 Hospital Outpatient Department</th>
<th>2017 Hospital Outpatient Department</th>
<th>5 Year Estimated Growth</th>
<th>% Growth</th>
<th>2012 Physician Practice/Ambulatory</th>
<th>2017 Physician Practice/Ambulatory</th>
<th>5 Year Estimated Growth</th>
<th>% Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE Valley</td>
<td>1,308,190</td>
<td>1,426,532</td>
<td>118,342</td>
<td>9.0%</td>
<td>7,422,356</td>
<td>8,194,160</td>
<td>771,804</td>
<td>10.4%</td>
</tr>
<tr>
<td>Phoenix</td>
<td>1,118,663</td>
<td>1,205,785</td>
<td>87,122</td>
<td>7.8%</td>
<td>6,507,980</td>
<td>7,090,227</td>
<td>582,247</td>
<td>8.9%</td>
</tr>
<tr>
<td>NW Valley</td>
<td>886,283</td>
<td>980,729</td>
<td>94,446</td>
<td>10.7%</td>
<td>4,791,603</td>
<td>5,369,361</td>
<td>577,758</td>
<td>12.1%</td>
</tr>
<tr>
<td>SW Valley</td>
<td>487,360</td>
<td>565,438</td>
<td>78,078</td>
<td>16.0%</td>
<td>2,956,479</td>
<td>3,453,079</td>
<td>496,600</td>
<td>16.8%</td>
</tr>
<tr>
<td>NE Valley</td>
<td>455,351</td>
<td>488,650</td>
<td>33,299</td>
<td>7.3%</td>
<td>2,443,809</td>
<td>2,649,303</td>
<td>205,494</td>
<td>8.4%</td>
</tr>
<tr>
<td>Total</td>
<td>4,255,847</td>
<td>4,667,134</td>
<td>411,287</td>
<td>9.7%</td>
<td>24,122,227</td>
<td>26,756,130</td>
<td>2,633,903</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

Aggregate service volumes in the table above represent all ambulatory services by market area within either a Hospital based outpatient department or within a physician practice/non hospital based ambulatory center setting.

<table>
<thead>
<tr>
<th>MIHS Market Areas</th>
<th>2012 ED Volume</th>
<th>2017 ED Volume</th>
<th>5 Year Estimated Growth</th>
<th>% Growth</th>
<th>2012 Urgent Care Volume</th>
<th>2017 Urgent Care Volume</th>
<th>5 Year Estimated Growth</th>
<th>% Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE Valley</td>
<td>536,703</td>
<td>577,520</td>
<td>40,817</td>
<td>7.6%</td>
<td>592,154</td>
<td>645,902</td>
<td>53,748</td>
<td>9.1%</td>
</tr>
<tr>
<td>Phoenix</td>
<td>485,943</td>
<td>500,183</td>
<td>14,240</td>
<td>2.9%</td>
<td>518,045</td>
<td>536,123</td>
<td>18,077</td>
<td>3.5%</td>
</tr>
<tr>
<td>NW Valley</td>
<td>317,837</td>
<td>346,010</td>
<td>28,173</td>
<td>8.9%</td>
<td>340,619</td>
<td>373,021</td>
<td>32,402</td>
<td>9.5%</td>
</tr>
<tr>
<td>SW Valley</td>
<td>247,070</td>
<td>284,690</td>
<td>37,620</td>
<td>15.2%</td>
<td>263,228</td>
<td>303,667</td>
<td>40,438</td>
<td>15.4%</td>
</tr>
<tr>
<td>NE Valley</td>
<td>144,604</td>
<td>150,664</td>
<td>6,059</td>
<td>4.2%</td>
<td>155,019</td>
<td>161,771</td>
<td>6,751</td>
<td>4.4%</td>
</tr>
<tr>
<td>Total</td>
<td>1,732,157</td>
<td>1,859,066</td>
<td>126,909</td>
<td>7.3%</td>
<td>1,869,066</td>
<td>2,020,483</td>
<td>151,417</td>
<td>8.1%</td>
</tr>
</tbody>
</table>

Aggregate service volumes in the table above represent the ambulatory services by market area for only emergency department visits or visits to an urgent care setting.

Source: Advisory Board, Thompson Reuters
MIHS Source of Business

Rather than focus on moving people to MMC, how does MIHS move care to where people live and work as a means of improving the care experience?

Source: Maricopa County Claims Data 2011 – 2013; (Non-Emergent Referrals)
Greater Primary Care Alignment

Opportunity to grow the MIHS primary care / ambulatory footprint

Employment of physicians by systems in the market has not translated into tight referral alignment. There is a significant cohort of non-DMG primary care physicians whose patients end up “down-stream” seeing a DMG specialist. These physicians could be partnership targets in the secondary service area.
Improved Continuity of Patient Care

Opportunity to capture downstream revenue from DMG specialists

There are a significant number of DMG-aligned specialists who could generate additional patient volume and revenue if they had referral options for follow-up care in the secondary service area and emerging markets. These referral options would be to programs, services, and physicians located in network ambulatory care sites.
Distributed Ambulatory Services
## Ambulatory Service Priorities

### Based on Strategic Opportunity and Emerging Demand

<table>
<thead>
<tr>
<th>Service Categories</th>
<th>Strategic Criteria</th>
</tr>
</thead>
</table>
| **Group A: Critical Access Channels** | • Critical access channels for patient populations and related immediate diagnosis and screening modalities  
• Alignment with ambulatory education/training needs for medical education and the next generation of providers |
| • Adult office visits  
• Pediatric office visits  
• Urgent care visits | • ED visits  
• Imaging  
• Lab tests |
| **Group B: Highest Strategic Priority Services (Based on Emerging Demand and Market Opportunity)** | • Highest priority clinical services identified for the MIHS ambulatory network development plan  
• Aligns to service needs of target populations across Maricopa County and with expected higher growth opportunities |
| • Behavioral Health  
• Cardiology Medicine  
• Dermatology  
• Gastroenterology  
• General Surgery | • Gynecology  
• Obstetrics  
• Orthopedics  
• Pediatrics  
• Pulmonary |
| **Group C: Tier 2 Services (Based on Emerging Demand and Market Opportunity)** | • Aligned with ambulatory clinical service needs based on Maricopa County population  
• Not prioritized as high based on market dynamics, competitive positioning; may be opportunity for partnered services. |
| • Cancer  
• Cardiac Invasive  
• ENT  
• Neurosciences  
• Ophthalmology | • Physical Therapy/Rehab  
• Podiatry  
• Urology  
• Vascular |

Prioritization based on strategic positioning, financial performance, community need, and emerging demand forecasts.
## Ambulatory Site Program Features

### Neighborhood, Community, and Health Center Configurations

<table>
<thead>
<tr>
<th>Services/Metric</th>
<th>Neighborhood</th>
<th>Community</th>
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<td>20,000-22,000</td>
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Recommended Strategies

1. **Grow the number of covered lives under MIHS care and management.**
   - Organize a physician-led clinically integrated care network that brings physicians, hospitals and others together to redesign care systems and improve outcomes, better manage cost, and enhance the patient care experience by January 2014.
   - Manage at least a total of 100,000 lives through arrangements with payers and employers by December 2015.
   - Increase total system revenue earned from managing lives enrolled in the MIHS health plans and under contract with insurers and employers by December 2015.

2. **Build and upgrade a network of ambulatory care facilities, in consultation with the Maricopa Health Centers Governing Council, in key markets outside the Maricopa Medical center primary service area:**
   - Design and build an east and a west ambulatory health center to extend the MIHS brand, grow office-based and outpatient volumes, and meet emerging community need by December 2016.
   - Add a new Family Health Center (FHC) in the central portion of northern Maricopa County to meet emerging care needs among AHCCCS patients in an underserved market by July 2016.
   - Reinvest in and reconfigure the existing FHCs to achieve more efficient market coverage and bring more services (including specialists) to targeted markets by July 2016.
Recommended Strategies

2. **Exercise prudent stewardship of our resources as a public teaching hospital and health care system.**
   - Build a strategic financial plan that the MIHS Board and management can use to assess market strategy and make informed resource allocations by November 2013.
   - Continuously review and refine operational practices so that MIHS can manage lives, deliver care, and teach and train clinicians in the most efficient and effective manner possible (ongoing).
   - Develop an organizational and reporting structure to enhance the ability to evaluate the performance of strategic lines of business (June 2014).

3. **Build a coalition of academic programs (medical schools, nursing programs, allied health) to design an integrative academic medical campus that includes a replacement hospital for Maricopa Medical Center.**
   - Design a campus to support an inter-professional model of education; deploy and train those teams in evidence-based care models. Complete design work by December 2015.
   - Design a new Maricopa Medical Center as an academic medical center with sufficient beds (220 – 250) to support residency requirements and serve the needs of core service lines including Level 1 burn, adult and pediatric trauma, general surgery, and orthopedics by December 2015.
   - Build an academic brand for MIHS and the clinically integrated network; position MIHS as the program where the finest clinicians chose to train, teach and practice, and as an expert resource for the diagnosis and treatment of complex, comorbid conditions by December 2014.
Recommended Strategies

5. **Expand behavioral health capacity to meet community need, specifically:**
   - Consolidate the behavioral health programs on a single campus that enables the program to serve rising demand more effectively and efficiently by December 2017.
   - Integrate outpatient behavioral health into the community health clinics to grow convenient access to needed mental health and substance abuse services by December 2014.

6. **Advance community initiatives to improve the health of Maricopa County.**
   - Develop and deploy population health tools through the clinically integrated network to manage at-risk patient cohorts (dual eligible, uninsured, and populations with disparities) in 2014.
   - Support the Maricopa Health Foundation in its efforts to generate additional funding for community health initiatives.
Introduction

Developing the evaluation of the existing facilities was a progressive process that built upon input from the local knowledge of MIHS staff, Kurt Salmon’s proprietary facility condition survey tool and Kurt Salmon’s national healthcare experience.

The existing facilities were evaluated in three ways:

1. Condition of the existing infrastructure and configuration
   - Provides insight into the capacity of the existing buildings to continue to be used for current purposes as is, or to be adapted to serve those needs.

2. Use of the available capacity of the existing spaces vs. national comparisons
   - Evaluates whether the clinical spaces are fully utilized or have capacity for growth

3. The amount of department space per key clinical room vs. planning standards
   - Comparison of the size of individual rooms and the total department space to serve the contemporary healthcare technology and care models
   - A tour of the facilities and review of floor plans also supported a quantitative assessment
Context for Facility and Functional Assessment

The MIHS Main Tower was built in 1970 and many things about healthcare have changed in the subsequent 43 years

- Medical technologies
- Information / communication technology
- Models of clinical care
- Pharmaceuticals
- Infections and drug-resistant diseases
- Patient and family expectations
- Regulation
- Reimbursement

Any evaluation of facilities and functionality must account for these changes and recognize that the speed at which continued changes are occurring has increased which will only exacerbate current deficiencies.
# Evolution of Healthcare: Changes Since 1970

New technology, diseases and legislative changes impact the physical environment

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<th>1970’s</th>
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<td>Pharmacology</td>
<td>• Pay Based on Satisfaction</td>
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<td>HIV/ Aids</td>
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</table>

**Key**
- **Clinical Factors**
- **Technology Factors**
- **Legislative Factors**
Evolution of Healthcare: Changes Since 1970

More and improved treatments to **extend life**. Example: cardiac care

**REPAIR**
- Re-open vessels
  - Angioplasty
  - Stents
  - Ablations

**REPLACE**
- Bypass the blockage
  - CABG

**MANAGE**
- The conditions, wait and see
  - Antianginals
  - Beta blockers

---

1970

**HEART ATTACK**

**HEART FAILURE**

**LIFESTYLE**
- Environment
- Genetics

**ARTERY DISEASE and BLOCKAGE**

**REPAIR**
- Valve clips / stents

**REPLACE**
- Valve replacement
- Transplant
- Artificial heart
- Stem-cell therapy

**MANAGE**
- Medication
- Diet
- VADS
- Pacers / IC

---

Today
Evolution of Healthcare: Changes Since 1970

More and improved treatments to improve the quality of life

- Implantable Devices
  - Joints
  - Pacemakers
  - Deep brain stimulators
- Cosmetic surgery
- Bariatric Surgery
Evolution of Healthcare: Acuity Shifting

The mix of patient acuity in healthcare facilities continue to change as less invasive technologies are deployed on an outpatient basis.
Environment Responses: Safety

Inpatient rooms are changing in response:
» All private rooms
» More medical equipment
» Smart and wired
» Accommodations for family

Goal: Quality and Efficiency
» Improved clinical care / outcomes
» Enhanced safety
  – Reduce infections
  – Prevent falls
  – Eliminate medication errors
» Efficiency
  – No blocked beds
  – Shorten length of stay
  – Fewer transfers / transport
Environment Responses: Efficiency

Bed assignment process for a hospital with semi-private beds

Bed assignment process is streamlined for an all-private bed hospital
Environment Responses: Efficiency

Example – interventional platform at UCLA Westwood has a consolidated prep and recovery area for all invasive procedures resulting in shorter length of stays and consolidated staffing around these patients.
Environment Responses: Adaptability

Modularity and sharing of spaces

Convertible Acuity in the same footprint

Source: FKP Architects
Environment Responses: Technical Capacity

Building Infrastructure
» Larger column grids
» Greater floor-to-floor heights
» Greater floor loading
» Higher HVAC capacity
» Wireless friendly
» Pervasive technology cabling
» Greater electrical capacity

Intelligent buildings
» Pervasive computing
» Centrally linked to on/off campus buildings and physician offices
» Master-controlled energy systems – green buildings
» Automated pharmacy, supplies, biomedical
» Virtual clinicians

Johnson Controls
Environment Responses: Planning Standards

Planning standards have increased to enable the evolution of healthcare technology, meet quality expectations and reduce the cost of operations.

Comparative examples to the existing MIHS environment:

**Surgery**
- MIHS today = 2,487 Department Gross Square Feet (DGSF) per operating room
- Today’s planning standards = 3,200 to 3,500 dgsf

**Intensive Care Units**
- MIHS today = 249 to 299 DGSF per bed
- Today’s planning standards = 800 to 900 DGSF

**Pediatric Clinic**
- MIHS today = 415 DGSF per exam room
- Today’s planning standards = 600 to 650 DGSF
Facility Condition Survey: Overview

The Facility Condition Survey™ provides a leadership-focused report

» High-level understanding of building infrastructure status
» Broad in scope—eight categories/54 subcategories

Kurt Salmon proprietary scoring system based on survey of attributes within each category and subcategory

Provides insight on each building’s...

» Suitability for current use
» Suitability for continued investment

Inputs represent externally observable attributes and the internal knowledge of MIHS’ facility engineering staff

» This survey is not a substitute for a detailed engineering study or as a guide infrastructure investment and maintenance schedules

Note: Kurt Salmon’s Facility Condition Survey is a proprietary tool
Facility Condition Survey: Scoring

The rating indicates a building’s capability to continue to serve its current use:

- **Not suited for continued current use**
- **Sufficient to consider continued investment in current use (e.g., inpatient vs. outpatient vs. office building vs. support building)**
- **Strong asset for the long-term investment in current or other uses**

**Elements of Facility Condition Survey:**
- Functional-Structural
- Exterior
- Vertical Circulation
- Mechanical
- Electrical
- IT
- Life Safety
- ADA

*Note: elements that are difficult or impossible to change are weighted more heavily*
Process Review: MIHS Locations Evaluated

Kurt Salmon evaluated owned facilities, there are two leased FHC’s not included

<table>
<thead>
<tr>
<th>Main Campus</th>
<th>Off Campus Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Tower</td>
<td>Desert Vista</td>
</tr>
<tr>
<td>CHC</td>
<td>FHC:</td>
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<tr>
<td>Administration</td>
<td>» Avondale</td>
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<td>Hogan Building</td>
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<td>Power Plant</td>
<td>» El Mirage</td>
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<td>Laundry/Maintenance</td>
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<td>2611 Warehouse</td>
<td>» Guadalupe</td>
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<td>» Mesa</td>
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<td></td>
<td>» South Central</td>
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<td></td>
<td>» SunnySlope</td>
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</tbody>
</table>
Facility Condition Survey: Clinical Buildings

**Main Tower**

**Characteristics:**
- Building Year: 1970
- Floors: 10

**Primary Function:**
- Inpatient Beds
- Diagnostic & Treatment
- Emergency Department
- Pediatric Emergency Department
- Surgery
- Labor and Delivery
- Burn Unit

**CHC**

**Characteristics:**
- Building Year: 1994
- Floors: 3

**Primary Function:**
- Outpatient Clinics
  - Breast Center, Cardiac Rehab, Dentistry, ENT, Orthopedics, Oncology, Primary and Specialty Care (adult and peds), Renal, Surgery, Woman’s Clinic

**2619 Building**

**Characteristics:**
- Building Year: 1975
- Floors: 2

**Primary Function:**
- Behavioral Health
  - Inpatient
    - Adult
    - Geriatric
  - MIHS Offices
    - IT
    - Human Resources

**Desert Vista**

**Characteristics:**
- Building Year: 1998
- Floors: 2

**Primary Function:**
- Behavioral Health
  - Inpatient
    - Involuntarily, court ordered
  - Outpatient
  - Court and legal personnel

Source: MIHS Website
Facility Condition Survey: Current State

1 Main Tower 1970
2 Comp. Healthcare Center (CHC) 1994
3 CAC 1996
4 Hogan Building 1989
5 Laundry/Maintenance 1970
6 2611 Warehouse 1995
7 2619 Building 1975

Notes: Kurt Salmon and MIHS Facility Staff toured each FHC; Data review by MIHS Staff
## Summary by Category: Main Campus/Desert Vista

<table>
<thead>
<tr>
<th>Category</th>
<th>Main Tower</th>
<th>CHC</th>
<th>2611 Warehouse</th>
<th>CAC</th>
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Notes: Kurt Salmon and MIHS Facility Staff toured each FHC; Data review by MIHS Staff
Other Considerations

Administration has done a good job of making the best use of the Main Tower through productive renovations given the building’s design limitations

1. The first level was not originally designed to support the shift to greater outpatient volume in the diagnostic and treatment services
   - Few recovery beds for day surgery and same-day admission patients
   - MRI and CT have been retrofitted into the building, but are not closely tied to the main imaging department

2. The bed tower configuration is not adaptable to contemporary high acuity care
   - Distances between support columns are insufficient to enable conversion to private acute care rooms without a code variance; it is possible to meet code for behavioral health patients
   - Conversion to private rooms results less efficient bed units because more staff per bed is required to meet patient care / coverage needs
Family Health Centers: FCS Scores

- El Mirage FHC (1991)
- Glendale FHC (1980)
- Maryvale FHC (1991)
- Avondale FHC (2000’s*)
- Sunnyslope FHC (1993)
- Main Campus
- Mesa FHC (1984)
- Guadalupe FHC (1994)
- South Central FHC (1992)
- Chandler FHC (1991)

*: Avondale was constructed in the 2000’s but exact year was not know at time of printing.
Notes: Only MIHS owned FHC were evaluated; Kurt Salmon and MIHS Facility Staff toured each
FHC, Data review by MIHS Staff.
## Summary by Category: FHC

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<th>Chandler</th>
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</tr>
<tr>
<td>ADA Accessibility</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
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<tr>
<td>Overall Physical Condition</td>
<td>1.78</td>
<td>1.64</td>
<td>1.61</td>
<td>1.58</td>
<td>1.48</td>
<td>1.47</td>
<td>1.47</td>
<td>1.35</td>
<td>1.24</td>
</tr>
</tbody>
</table>
Functional Assessment: Definitions

Kurt Salmon has developed a robust set of assessment metrics developed through our 60+ years of facility planning. The functional assessment is focused on two broad categories: use of capacity and space.

The space assessment is based on two primary metrics:

1. **Department gross square feet (DGSF) per “key room”**
   - Key rooms = beds, operating rooms, emergency beds, etc.
   - DGSF includes all rooms, corridors and walls within a given department

2. **Net square feet (NSF) measurements of key rooms**
   - NSF is the space within the rooms
## Functional Assessment: Definitions

The capacity use assessment measured as follows

<table>
<thead>
<tr>
<th>Category</th>
<th>Inpatient Beds</th>
<th>Diagnostic and Treatment</th>
</tr>
</thead>
</table>
| **Services** | • Behavioral Health  
                • Burn  
                • Critical Care  
                • General medical/surgical  
                • Neonatal ICU (NICU)  
                • Obstetrical Beds | • Angiography  
                           • Catheterization  
                           • Emergency  
                           • Endoscopy  
                           • Imaging  
                           • Surgery |
| **Metric** | Occupancy rate at midnight census as a percent of available beds in each category | Visits/tests/procedures per room per year |
| **Comments** | Accommodates seasonal and daily variances based on the least busy time of day | Accommodates room turnover, off-hour activity, equipment maintenance and seasonal variation |
Functional Assessment: Ratings

Rating compares the existing environment to contemporary planning standards

**Unit/Room Size Assessment**

- **Green:** within target range
- **Yellow:** within 10% of target range
- **Red:** greater than 10% below target range
- **Blue:** greater than 10% above target range

**Patient Days/Volume Assessment**

- **Green:** below target capacity; growth opportunity
- **Yellow:** within target capacity; limited growth opportunity
- **Red:** exceeds target capacity; insufficient capacity available for current activity
Contemporary hospitals use an all-private room model:
- Infection control
- Improved efficiency
- Better healing environment
- Family participation
- Complies with AIA guidelines

Room sizes and total support space have expanded in the past 40 years:
- Increased patient acuity
- Larger beds
- More equipment & technology

### Bed Unit

<table>
<thead>
<tr>
<th>Bed Unit</th>
<th>Private Ratio</th>
<th>DGSF/Bed Rating</th>
<th>NSF/Room Rating</th>
<th>Occupancy %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Tower</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult M/S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Intermediate</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adult ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Burn Unit</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Post-Partum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatric M/S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatric ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2619 Building</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Behavioral Hlth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Desert Vista</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adult Behavioral Hlth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Occupancy % is as of end of April 2013 – May 2012;
Data review by MIHS Staff

Source: MIHS_Trend_Department_Statistics_Data_Set – April 2013
## Functional Assessment: Maricopa Hospital

- Most patient beds are in rooms originally designed as four-bed wards
- Both the MICU and SICU beds are mostly open bays with only curtains in between each bed

### Unit Assessment

<table>
<thead>
<tr>
<th>Flr</th>
<th>Department</th>
<th>Beds</th>
<th>% Prvt</th>
<th>DGSF</th>
<th>Room Assessment</th>
<th>Patient Days</th>
<th>Occ %</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Burn (Peds)</td>
<td>28</td>
<td>7%</td>
<td>16,927</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td>26,730</td>
<td>75%</td>
</tr>
<tr>
<td>7</td>
<td>Burn (Adult)/Med Surg Overflow</td>
<td>28</td>
<td>7%</td>
<td>16,927</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>General-Med Surg</td>
<td>38</td>
<td>26%</td>
<td>9,775</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Surgery/Trauma</td>
<td>31</td>
<td>6%</td>
<td>12,795</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>APCU</td>
<td>23</td>
<td>22%</td>
<td>11,000</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td>9,607</td>
<td>114%</td>
</tr>
<tr>
<td>5</td>
<td>APCU – West</td>
<td>9</td>
<td>100%</td>
<td>2,317</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Medical ICU</td>
<td>11</td>
<td>0%</td>
<td>3,285</td>
<td>Inpatient (ICU) - Semi Private - Bays</td>
<td>3,359</td>
<td>84%</td>
</tr>
<tr>
<td>4</td>
<td>Surgical ICU</td>
<td>13</td>
<td>0%</td>
<td>3,240</td>
<td>Inpatient (ICU) - Semi Private - Bays</td>
<td>3,322</td>
<td>70%</td>
</tr>
<tr>
<td>1</td>
<td>Burn Unit</td>
<td>19</td>
<td>89%</td>
<td>14,316</td>
<td>Inpatient - Semi Private, Inpatient - Private</td>
<td>5,045</td>
<td>73%</td>
</tr>
</tbody>
</table>

### Room Assessment

- **APCU West patient days cannot be broken out, therefore APCU occupancy may be overstated.**
- **A Semi Private Room types contain 2 or more beds.**
- **Data review by MIHS Staff.**

Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Functional Assessment: Maricopa Hospital

- Most pediatric intensive care beds are in open bays
- The NICU is not designed to contemporary concepts that support the neonates ability to thrive

### Table: Unit Assessment, Room Assessment, Patient Days

<table>
<thead>
<tr>
<th>Flr</th>
<th>Department</th>
<th>Beds/RMs</th>
<th>% Prvt</th>
<th>DGSF</th>
<th>DGSF/Bed</th>
<th>Rating</th>
<th>Room Type</th>
<th>NSF</th>
<th>Room/Count</th>
<th>Rating</th>
<th>Patient Days</th>
<th>Occ %</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Pediatric Med Surg</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pediatrics Med/Surg</td>
<td>34</td>
<td>38%</td>
<td>13,467</td>
<td>396</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>PICU</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PICU</td>
<td>7</td>
<td>0%</td>
<td>3,927</td>
<td>561</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>NICU</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>NICU</td>
<td>31</td>
<td>0%</td>
<td>6,801</td>
<td>219</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Mother/Baby</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Post Partum</td>
<td>27</td>
<td>7%</td>
<td>10,180</td>
<td>377</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Labor Delivery</td>
<td>20</td>
<td>100%</td>
<td>19,648</td>
<td>982</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Notes:
- PICU and NICU contains bays and pods not individual rooms
- A Semi Private Room types contain 2 or more beds
- Data review by MIHS Staff

Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Maricopa Hospital: Right Sized Clinical Space

Based on current room count and Kurt Salmon planning standards for clinical spaces:

» Maricopa Hospital is undersized by 25% in total

» Inpatient floors three through seven are undersized by 40%
  – Right sizing these floors would require an additional 4 floors the same size as the existing footprint of the inpatient floors

Does not include ancillary and support space (lab, food services, etc.)
Functional Assessment: 2619 Annex

» Standards of behavioral health care have changed to a private room therapy model, since the building was opened

» Behavioral health patients who have medical needs are admitted to this building. However, the building is not designed to manage those types of patients

<table>
<thead>
<tr>
<th>Flr</th>
<th>Department</th>
<th>Beds/ RMs</th>
<th>% Prvt</th>
<th>DGSF</th>
<th>DGSF/Bed</th>
<th>Rating</th>
<th>NSF</th>
<th>Rating</th>
<th>Patient Days</th>
<th>Occ %</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2619 Annex – Inpatient Behavioral Health</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Unit A - Adult</td>
<td>20</td>
<td>10%</td>
<td>9,010</td>
<td>451</td>
<td>205</td>
<td>6,804</td>
<td>93%</td>
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<tr>
<td>1</td>
<td>Unit B - Geriatric</td>
<td>20</td>
<td>15%</td>
<td>9,010</td>
<td>451</td>
<td>215</td>
<td>7,892</td>
<td>108%</td>
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<td></td>
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<tr>
<td>2</td>
<td>Unit C - Adult</td>
<td>20</td>
<td>20%</td>
<td>9,010</td>
<td>451</td>
<td>205</td>
<td>6,975</td>
<td>96%</td>
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</tr>
</tbody>
</table>

Note: Data review by MIHS Staff

Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Functional Assessment: Desert Vista

» The entire patient population is comprised of involuntary admissions
» Demand for voluntary admissions is reported to exceed the capacity of this facility
» Standards of behavioral health care have changed to a private room therapy model, since the building was opened

<table>
<thead>
<tr>
<th>Flr</th>
<th>Department</th>
<th>Beds/RMs</th>
<th>% Prvt</th>
<th>DGSF</th>
<th>DGSF/Bed</th>
<th>Rating</th>
<th>NSF</th>
<th>Rating</th>
<th>Pat Days</th>
<th>Occ %</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unit 2 - Adult Women</td>
<td>14</td>
<td>0%</td>
<td>7,500</td>
<td>536</td>
<td>228</td>
<td></td>
<td></td>
<td>4,812</td>
<td>94%</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Unit 3 - Adult Men</td>
<td>24</td>
<td>0%</td>
<td>7,500</td>
<td>313</td>
<td>228</td>
<td></td>
<td></td>
<td>7,838</td>
<td>89%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Unit 4 - Adult</td>
<td>24</td>
<td>0%</td>
<td>7,500</td>
<td>313</td>
<td>228</td>
<td></td>
<td></td>
<td>8,067</td>
<td>92%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Unit 5 - Adult</td>
<td>17</td>
<td>0%</td>
<td>7,500</td>
<td>441</td>
<td>228</td>
<td></td>
<td></td>
<td>5,705</td>
<td>92%</td>
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</tr>
<tr>
<td>2</td>
<td>Unit 6 - Adult</td>
<td>22</td>
<td>0%</td>
<td>7,500</td>
<td>341</td>
<td>228</td>
<td></td>
<td></td>
<td>7,304</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Unit 7 - Adult</td>
<td>22</td>
<td>0%</td>
<td>7,500</td>
<td>341</td>
<td>228</td>
<td></td>
<td></td>
<td>7,267</td>
<td>90%</td>
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</tr>
</tbody>
</table>

Note: Data review by MIHS Staff

Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
### Functional Assessment: Summary – Diagnostic and Treatment

> With the shift to more outpatient treatments, contemporary surgery suites include:
> - Robust outpatient recovery beds
> - Prep beds for outpatients and same-day admissions

> Non-invasive diagnostic imaging has expanded to more modalities with larger footprints and technology capabilities

> Emergency departments are doing more treatments and lengths of stays have increased to do more admission preparation than when this hospital was built

<table>
<thead>
<tr>
<th>Department</th>
<th>DGSF/RM Rating</th>
<th>NSF/RM Rating</th>
<th>Cases/RM/YR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac Cath</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endoscopy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Imaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ultrasound</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear Medicine/Vascular</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angiography Suite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Department</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Data review by MIHS Staff

Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013–May 2012)
Functional Assessment: Main Tower

- The surgical suite has a minimal amount of prep and outpatient recovery beds – most patients are placed in an inpatient unit to recover.
- While there are enough emergency department treatment rooms, staff and support space is undersized.
- The main imaging department is unable to accommodate new, major technologies.

<table>
<thead>
<tr>
<th>Flr</th>
<th>Department</th>
<th>RM/Bays</th>
<th>DGSF</th>
<th>DGSF/RMs/Bay</th>
<th>Rating</th>
<th>NSF</th>
<th>Rating</th>
<th>Patients</th>
<th>Cases/RM/YR</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Surgery</td>
<td>11</td>
<td>27,362</td>
<td>2,487</td>
<td>Red</td>
<td>519</td>
<td>Red</td>
<td>7,741</td>
<td>704</td>
<td></td>
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<tr>
<td></td>
<td>Cardiac Cath</td>
<td>2</td>
<td>4,645</td>
<td>2,323</td>
<td>Green</td>
<td>525</td>
<td>Green</td>
<td>678</td>
<td>339</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Endoscopy</td>
<td>4</td>
<td>4,385</td>
<td>1,096</td>
<td>Red</td>
<td>200</td>
<td>Red</td>
<td>3,486</td>
<td>871</td>
<td></td>
</tr>
</tbody>
</table>

- Surgery/Invasive

- Imaging*

- CT
- Diagnostic
- MRI
- US
- Nuclear Medicine
- Angio Suite

- ED

Notes: *Imaging volume was calculated using an procedure per patient ratio, ratios are listed in appendix; Peds ED was recently renovated, Adult and Peds ED patients are treated in separate and distinct locations. Data review by MIHS Staff. Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Functional Assessment: Summary – Ambulatory (Main Tower/CHC)

- Healthcare is facing an increasing shift to the outpatient setting
- Efficient clinic utilization is predicated on sharing space and flexibility of use vs. assigned spaces
  - Some specialization is necessary
- All of the CHC has been built out
  - Some public spaces have been "borrowed" for clinical and ancillary functions

<table>
<thead>
<tr>
<th>Department</th>
<th>DGSF/RM Rating</th>
<th>NSF/RM Rating</th>
<th>Cases/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Tower Clinics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHC Clinics/Imaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicine Clinic (Specialty)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicine Clinic (Primary Care)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renal Dialysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatology</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Antepartum Testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatric Clinic (Primary &amp; Specialty)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENT Clinic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman’s Care</td>
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Note: Data review by MIHS Staff
Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
### Functional Assessment: Main Tower/CHC

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Notes: *Includes 7 chemotherapy chairs. Data review by MIHS Staff. Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Functional Assessment: Summary – Ambulatory (FHCs)

- Current clinic trends are focused on providing patient and family friendly amenities (e.g. free coffee, play areas)
- Current FHC’s vary in patient friendly amenities with some utilizing window bars while others have large family learning centers

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<tr>
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<tr>
<td>Glendale</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Mesa</td>
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Note: Data review by MIHS Staff
Source: MIHS_Trend_Department_Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Functional Assessment: FHCs

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Notes: Chandler and Maryvale imaging DGSF is included within clinic DGSF. Data review by MIHS Staff. Source: MIHS_Trend_Department Statistics Data Set – April 2013 (Full Year April 2013-May 2012)
Introduction

Facility development options were based on several planning criteria including projected capacity needs, defined planning goals and options development guidelines. These criteria are grounded in the MIHS strategic plan as well as the existing facility review.

The development of multiple facility options primarily served two purposes:

» Confirm there are viable solutions that achieve the planning goals, and

» define the order-of-magnitude in capital required to implement those solutions

These options were created at a fairly high level but with sufficient detail to achieve the above purposes. A more detailed study along with architectural and engineering planning if this process moves forward.
## Facility Development Serves the MIHS Strategy

### Training the Next Generation of Healthcare Providers

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<th>Outpatient Care</th>
<th>Team Based Environment</th>
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<td>Utilization of Physical Resources</td>
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</table>

*Source: Navvis Healthways; MIHS Strategic Plan*

---

**Document date 021014**

**Importance of Care Values:**
- **Respect & Dignity:** Promoting the dignity and respect of all individuals within the healthcare system.
- **Support Excellent Care:** Ensuring high-quality, patient-centered care.
- **Space for Technology and Equipment:** Adequate facilities to support advanced medical technologies.
- **Efficient Workspace and Organization:** Streamlining operations to enhance efficiency.
- **Behavioral Health Beds:** Providing dedicated care for behavioral health conditions.
- **Behavioral Health Locations / Transfers:** Offering seamless care transitions for behavioral health patients.

**Key Areas of Focus:**
- **Acute Care:** Emphasizing rapid, effective treatment for urgent conditions.
- **Outpatient Care:** Focusing on non-acute care and patient education.
- **Team Based Environment:** Cultivating collaborative care teams.

---

*Source: Navvis Healthways; MIHS Strategic Plan*
Options Development Process

The development options are the outcome of fusing community need volume projections from Navvis with the facility planning guidelines of Kurt Salmon.

Navvis developed key assumptions and basis for community need projections

Navvis developed projected patient days and exam volumes  Kurt Salmon projected diagnostic and treatment volumes based on Navvis models

Navvis projected bed need  Kurt Salmon projected diagnostic & treatment key rooms and exam rooms

Kurt Salmon developed space need and bed distribution models

Kurt Salmon developed planning options and stacking diagrams
Projected Patient Days by Volume Scenario

Projected patient days between the low and high scenarios vary by eight percent.

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<th>FY 2023</th>
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<tr>
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<tr>
<td><em>Pediatrics</em></td>
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<td>10,567</td>
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<tr>
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<tr>
<td><strong>Behavioral Health</strong></td>
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<td>68,851</td>
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</tbody>
</table>

Source: Navvis Healthways; MIHS Strategic Plan
Bed Demand by Volume Scenario

*Projected volume only materially affects bed projections for behavioral health*
  
  - Currently MIHS has 280 acute care hospital beds which are projected to decline to 264
  - MIHS has 183 behavioral health beds today increasing to the low end of the projected range

<table>
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<th>Type</th>
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<th>Planning Occupancy</th>
<th>2023 Bed Need (rounded)</th>
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<td>High</td>
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<td>LDRP</td>
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</tr>
</tbody>
</table>

**Licensed Acute Beds**

| Behavioral Health | 188.6 | 199.7 | 208.7 | 80% | 236  | 250  | 261  | 240 |

Source: Navvis, Kurt Salmon planning standards

a) Based on potential bed unit sizing by bed type
Diagnostic and Treatment (D&T) – Volume Projections

- D&T projections mirror the change rate of the acute care bed projections
- Emergency volume change is slightly greater than the other services

<table>
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<th>Projected FY 2023</th>
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<td>Volume</td>
<td>Rate</td>
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<td>Surgery/Invasive</td>
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<td>1.4%</td>
</tr>
<tr>
<td>Cardiac Catheterization</td>
<td>645</td>
<td>1.4%</td>
</tr>
<tr>
<td>Angiography</td>
<td>665</td>
<td>1.1%</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>3,485</td>
<td>1.4%</td>
</tr>
<tr>
<td>Imaging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>13,682</td>
<td>1.1%</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>27,791</td>
<td>1.1%</td>
</tr>
<tr>
<td>MRI</td>
<td>2,695</td>
<td>1.1%</td>
</tr>
<tr>
<td>US</td>
<td>5,987</td>
<td>1.1%</td>
</tr>
<tr>
<td>Nuclear Medicine</td>
<td>1,047</td>
<td>1.1%</td>
</tr>
<tr>
<td>Mammography</td>
<td>2,136</td>
<td>1.1%</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>71,074</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Source: Navvis Healthways Scenarios Model; Kurt Salmon analysis
D & T Room Demand by Scenario

» Like the bed model, projected D&T volumes do not result in a material difference for major hospital-based diagnostic and treatment rooms

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Volume</th>
<th>Visits / Room /Year</th>
<th>Room Need (Rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Mid</td>
<td>High</td>
</tr>
<tr>
<td>Surgery / Invasive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>9,111</td>
<td>9,156</td>
<td>9,689</td>
</tr>
<tr>
<td>Cardiac Catheterization</td>
<td>741</td>
<td>745</td>
<td>788</td>
</tr>
<tr>
<td>Angiography</td>
<td>738</td>
<td>776</td>
<td>817</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>4,005</td>
<td>4,025</td>
<td>4,259</td>
</tr>
<tr>
<td>Imaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>15,189</td>
<td>15,957</td>
<td>16,816</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>30,850</td>
<td>32,411</td>
<td>34,155</td>
</tr>
<tr>
<td>MRI</td>
<td>2,992</td>
<td>3,143</td>
<td>3,312</td>
</tr>
<tr>
<td>US</td>
<td>6,646</td>
<td>6,982</td>
<td>7,358</td>
</tr>
<tr>
<td>Nuclear Medicine</td>
<td>1,162</td>
<td>1,221</td>
<td>1,287</td>
</tr>
<tr>
<td>Mammography</td>
<td>3,338</td>
<td>3,338</td>
<td>3,338</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>74,177</td>
<td>79,509</td>
<td>79,965</td>
</tr>
</tbody>
</table>

Source: Navvis Healthways Scenarios Model; Kurt Salmon planning standards
FHC and CHC Volume Projections

- Scenarios based on community need assumptions with a greater shift to care in the outpatient environment

<table>
<thead>
<tr>
<th>Location</th>
<th>Clinic</th>
<th>Dental</th>
<th>Clinic</th>
<th>Dental</th>
<th>Clinic</th>
<th>Dental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avondale</td>
<td>13,936</td>
<td>3,041</td>
<td>17,839</td>
<td>3,333</td>
<td>19,623</td>
<td>3,649</td>
</tr>
<tr>
<td>El Mirage</td>
<td>15,237</td>
<td>-</td>
<td>18,035</td>
<td>-</td>
<td>19,838</td>
<td>-</td>
</tr>
<tr>
<td>Sunnyslope</td>
<td>18,135</td>
<td>-</td>
<td>20,292</td>
<td>-</td>
<td>22,321</td>
<td>-</td>
</tr>
<tr>
<td>Guadalupe</td>
<td>11,538</td>
<td>-</td>
<td>13,272</td>
<td>-</td>
<td>13,272</td>
<td>-</td>
</tr>
<tr>
<td>7th Avenue</td>
<td>15,986</td>
<td>-</td>
<td>17,887</td>
<td>-</td>
<td>17,887</td>
<td>-</td>
</tr>
<tr>
<td>South Central</td>
<td>16,188</td>
<td>1,041</td>
<td>18,113</td>
<td>1,141</td>
<td>18,113</td>
<td>1,249</td>
</tr>
<tr>
<td>McDowell</td>
<td>11,959</td>
<td>2,802</td>
<td>13,381</td>
<td>3,071</td>
<td>13,381</td>
<td>3,362</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>52,203</td>
<td>2,413</td>
</tr>
<tr>
<td>Glendale</td>
<td>18,556</td>
<td>2,011</td>
<td>21,963</td>
<td>2,204</td>
<td>54,014</td>
<td>5,318</td>
</tr>
<tr>
<td>Maryvale</td>
<td>21,539</td>
<td>-</td>
<td>27,572</td>
<td>-</td>
<td>58,516</td>
<td>5,819</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>54,014</td>
<td>5,318</td>
</tr>
<tr>
<td>East CHC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>58,516</td>
<td>5,819</td>
</tr>
<tr>
<td>Chandler</td>
<td>20,669</td>
<td>2,001</td>
<td>23,775</td>
<td>2,193</td>
<td>Consolidated into East CHC</td>
<td></td>
</tr>
<tr>
<td>Mesa</td>
<td>18,462</td>
<td>2,431</td>
<td>21,237</td>
<td>2,664</td>
<td>Consolidated into East CHC</td>
<td></td>
</tr>
<tr>
<td>Main CHC</td>
<td>153,509</td>
<td>10,119</td>
<td>176,757</td>
<td>11,089</td>
<td>193,637</td>
<td>12,143</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>205,376</td>
<td>13,286</td>
</tr>
</tbody>
</table>

Source: Navvis Healthways Scenarios Model
### FHC and CHC Key Room Need

Once distributed to the individual locations, the scenarios do not result in a material difference by site

<table>
<thead>
<tr>
<th>Location</th>
<th>Historic Volume</th>
<th>FY 2023 Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clinic</td>
<td>Dental</td>
</tr>
<tr>
<td>Avondale</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>El Mirage</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Sunnyslope</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Guadalupe</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>7th Avenue</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>South Central</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>McDowell</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>West CHC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glendale</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Maryvale</td>
<td>22</td>
<td>-</td>
</tr>
<tr>
<td>East CHC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chandler</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>Mesa</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Main CHC</td>
<td>161</td>
<td>12</td>
</tr>
</tbody>
</table>

*Source: Navvis Healthways Scenarios Model; Kurt Salmon planning standards*
Overall Planning Goals

Inpatient services

1. Replace the Main Hospital per the facility assessment outcomes and strategic plan
2. Consolidate all three behavioral health service sites for improved efficiency
3. Right-size clinical care services to achieve contemporary care and training environment

Outpatient services

1. Right-size and/or relocate the existing FHC’s to achieve strategic patient service goals and efficient operating models
2. Expand the CHC capacity on the existing campus to enable continued shifting to outpatient services
3. Develop new CHC’s to include exam/diagnostic, treatment and therapy services appropriate to a free-standing ambulatory setting

Training programs

1. Enhance academic and education capabilities and support spaces

Source: Navvis, Healthways; MIHS Strategic Plan
Option Development Guidelines

1. Each option must be buildable, phase-able and functional when complete
2. Minimize the number of “make-ready” projects required to achieve the end result
3. Retain and/or repurpose as many existing buildings as possible
4. Each building should have adequate parking that is close to a highly visible front entrance
5. Various types of vehicular traffic circulation should be separated (e.g., public, emergency, physicians/employee, service)

Source: Kurt Salmon
Rule-out example: Desert Vista Expansion Option

» Although this option does was considered for consolidating inpatient behavioral health, it was ruled out as not buildable / phase-able

Attributes

» Uses an asset where the majority of behavioral health patients are currently seen
» Building structured for vertical expansion without extraordinary investment needed
» Development not dependent on make-ready projects

Deficiencies

» It will be difficult to renovate while the building is occupied
» Property size is limited and sufficient parking will require a parking deck
» Does not consolidate behavioral health services on a single campus
  – Medical behavioral health on the acute care campus, urgent psych center at a third campus
» Does not achieve a private bed model
  – 138 patients in semi-private rooms; 54 patients in private rooms
» Locates Behavioral Health in a neighborhood that is not highly accessible

Source: Kurt Salmon
Options Overview

From a larger set of alternatives, three options for acute care services and three options for behavioral health services fit the planning criteria.

<table>
<thead>
<tr>
<th>Behavioral Health Options</th>
<th>Acute Care Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1: Renovated Main Hospital</td>
<td>Replace Power Plant and Add Parking Garage</td>
</tr>
<tr>
<td>Option 2: New Hospital on Main Campus</td>
<td>N/A</td>
</tr>
<tr>
<td>Options 3: Greenfield Site</td>
<td>√</td>
</tr>
</tbody>
</table>
Potential Acute Care Hospital Stacking Diagram

This potential approach to organizing a new acute care hospital helps establish the approximate footprint of the building.

1. Adult and Pediatric ED
2. Procedure Platform (surgery, cardiac cath, angiography, endoscopy, prep/recovery)
3. Mechanical
4. NICU, Labor and Delivery (18), Ante/Post Partum (32)
5. Intensive Care (16)
7. Med/Surg (24)
9. Medical Behavioral Health (24)
10. Intensive Care (16)

Source: Kurt Salmon analysis
Acute Hospital Option 1: East Option

Key
- New Clinical Construction
- New Support Construction
- Renovated Clinical Construction
- New Power Plant
- New Parking
- Existing MIHS Buildings
- Service Entrance
- Public Entrance
- Ambulance/Walk-in Entrance

Existing MIHS Buildings

New Clinical Construction

Add Floor to Existing CHC

New Support Construction

New Parking

Planned Faculty Bldg.

Educational and Research

Power Plant Expansion

Existing Laundry & Facilities

Power Plant

New Hospital

Admin. and Support

Education and Research

Ambulance

OP ENTRANCE

IP ENTRANCE

ED ENTRANCE

SERVICE ENTRANCE
Acute Hospital Option 1: East Option

Attributes

» Readily buildable site with minimal impact on patient parking
» Main hospital, CHC and support services right-sized
» Incorporates the current plans for the faculty office building
» Good separation of vehicular traffic
» Continued use of the warehouse, 2619 buildings and existing power plant

Deficiencies

» Hospital and CHC are disconnected -- on opposite ends of the campus
» Helipad must be relocated
» Expansion of the power plant is required as a “make-ready” project
» An interim parking solution (e.g., shuttle service, parking garage) is also a “make ready” requirement
Acute Hospital Option 2: West Option

- New Main Hospital
- Planned Faculty Bldg.
- Power Plant Exp.
- New Laundry Building
- Add Floor to Existing CHC
- Existing Warehouse
- Planned Education and Research
- Existing MIHS Buildings
- New Parking
- Parking
- EMERGENCY ENTRANCE
- Ambulance/Walk-in Entrance
- Ambulance
- Service Entrance
- Service Entrance
- Public Entrance
- New Power Plant
- New Support Construction
- New Clinical Construction
- Renovated Clinical Construction

Key:
- New Clinical Construction
- New Support Construction
- Renovated Clinical Construction
- New Power Plant
- New Parking
- Existing MIHS Buildings
- Public Entrance
- Ambulance/Walk-in Entrance
- Service Entrance

Document date 021014
Acute Hospital Option 2: West Option

Attributes

» Main hospital, CHC and support services right-sized
» Hospital and CHC connected for staff efficiency and patient convenience
» Incorporates the current plans for the faculty office building
» Good separation of vehicular traffic
» Clear separation of service zones from clinical zones
» Continued use of the warehouse, 2619 buildings and existing power plant

Deficiencies

» An interim patient parking solution (e.g., shuttle service) is a “make ready” requirement
» Expansion of the power plant is required as also a “make-ready” project
» Some patient parking is far from the building entrances

Source: Kurt Salmon analysis
Acute Hospital Option 3: Greenfield Site

New Campus
  » Acute care hospital
  » Faculty offices
  » Education building

Existing Main Campus
  » Expanded CHC
  » Warehouse
  » Laundry
  » Administrative and IT support

Location TBD
Acute Hospital Option 3: Greenfield Site

Attributes
» Can organize site without existing constraints
» Main hospital, CHC and support services right-sized
» Continued use of the warehouse and 2619 buildings to support operations

Deficiencies
» Requires the acquisition of an additional property
» Separate the CHC and major support components from the hospital
» Walks-away from the current plans for the faculty office building
» Cannot leverage existing power plant, must be all new
» Requires more / longer transport of supplies and linen

Source: Kurt Salmon analysis
# Behavioral Health Options

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renovate Main Hospital</td>
<td>New Hospital on Main Campus</td>
<td>Greenfield Site</td>
</tr>
</tbody>
</table>

- **Option 1**
  - Renovate to meet AIA guidelines for behavioral health facilities
  - Remove all asbestos
  - Replace all interior walls, ceilings, doors, plumbing, electrical, mechanical systems and windows

- **Option 2**
  - Build a new behavioral health hospital to the east of the existing Main Hospital

- **Option 3**
  - Develop new inpatient, day hospital and urgent care intake on a new site
  - Co-locate with acute care hospital, if acute care option 3 is chosen
BH Option 1: Renovate Main Hospital

Existing building can achieve 192 beds to include non-medical behavioral health beds.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>General (24)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>General (24)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>General (24)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>General (24)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>General (24)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Prisoner (48)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Courts, Administrative, Outpatient, Recreation</td>
<td>Geriatric (24)</td>
</tr>
<tr>
<td>A</td>
<td>Support (food service, materials, EVS, CSS)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Kurt Salmon analysis
BH Option 1: Renovate Main Hospital

» Requires additional development on the campus for either acute care option
BH Option 1: Renovate Main Hospital

Attributes

» Utilizes an existing asset
» Consolidates all medical and non-medical behavioral health patients on the same campus
  – Minimizes the number of transfers from intake through discharge
» Sufficient space to include urgent and outpatient programs
» Sale of Desert Vista property can provide some of the funding

Deficiencies

» Care configuration model will be deficient, despite heavy investment
  – Some of the units will fall short of planning standards
» Adds cost to each on-campus acute care option
» Requires a major investment in a 40+ year old building
» Development cannot start until the new acute hospital is built and occupied
» Abandons existing behavioral health assets

Source: Kurt Salmon analysis
BH Option 2: New Hospital on Main Campus

Key:
- New Clinical Construction
- New Support Construction
- Renovated Clinical Construction
- New Power Plant
- New Parking
- Existing MIHS Buildings
- Service Entrance
- Public Entrance
- Ambulance/Walk-in Entrance
- Main Entrance
- Roosevelt St.

MARICOPA INTEGRATED HEALTH SYSTEM
2601 E. ROOSEVELT ST.
PHOENIX, AZ 85008

Document date 021014
BH Option 2: New Hospital on Main Campus

The following are additive to the attributes and deficiencies of Acute Care Option #2

**Attributes**

- Readily buildable site
- Consolidates all medical and non-medical behavioral health patients on the same campus
  - Minimizes the number of transfers from intake through discharge
- Sufficient space to enable development of outpatient programs
- Sale of Desert Vista property can provide some of the funding

**Deficiencies**

- Abandons existing behavioral health assets
- May require a parking garage to achieve sufficient parking capacity

Source: Kurt Salmon analysis
BH Option 3: Greenfield Site

Attributes

» Can organize site without existing constraints
» Consolidates all medical and non-medical behavioral health patients on the same campus
  – Assumes combination of greenfield acute care option
  – Minimizes the number of transfers from intake through discharge
» Development not dependent on make-ready projects
» Sale of Desert Vista property can provide some of the funding

Deficiencies

» Requires the acquisition of a new property
» Abandons existing behavioral health assets

Source: Kurt Salmon analysis
Project Cost Overview

Capital project costs for each acute care facility option is nearly the same

» Includes construction, fees, furniture, equipment and contingency
» Escalation of 3% per year through 2020

<table>
<thead>
<tr>
<th>Facility Costs</th>
<th>Acute Care Hospital</th>
<th>BH Hospital</th>
<th>CHC's</th>
<th>FHC's</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$541M to $548M</td>
<td>$247M</td>
<td>$102M</td>
<td>$26M</td>
<td>$916M to $923M</td>
</tr>
<tr>
<td>New Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education / Research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laundry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Plant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2619 Renovation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Relocate Helipad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demolition of existing hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Renovate Main Hospital $231M

New Hospital

East CHC
West CHC
Expand Central CHC

Replace:
Avondale
El Mirage
Sunnyslope
South Central
Guadalupe
7th Avenue

No change to McDowell

+$5.5M

+$2M each for East and West

+$4M to $9.5M

Kurt Salmon capital projection cost model based on projected building sizes and anticipated local construction costs