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Analysis of Current Markets for Casino Gaming

In Iowa, with Projections for the Revenues

And Impacts of Potential New Facilities

Update

April 18, 2005

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List of Exhibits
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Analysis of Current Markets for Casino Gaming
In Iowa, with Projections for the Revenues
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Update -- Executive Summary

The Iowa Racing and Gaming Commission is currently reviewing ten applications for new riverboat gaming facilities in the State of Iowa. To assist in this review, the Commission has retained Cummings Associates to update my report of October 7, 2003. This includes analysis of the current markets for casino gaming in Iowa, comparisons with the most relevant markets elsewhere, and projections for the likely revenues and impacts of the proposed new gaming facilities. This report describes my methodology and the resulting projections for gaming revenues and impacts. A companion report assesses the "density" of casinos, slot machines and table games in Iowa, and the levels of service they provide, in comparison with those of other states.[1]

As in my previous report, my analyses and projections are based upon the application of detailed "gravity models." These relate actual (and, for proposed facilities, potential) gaming facility revenues to the demographics of the areas surrounding them. These gravity models are based upon a well-established principle of economics called "Reilly's Law," which describes how consumers tend to visit alternative retail centers (roughly) in direct proportion to the size of each center (such as casino square footage, or number of slot machines and table games) and

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[1] *The "Density" of Casinos, Slot Machines and Table Games in Iowa Compared to Other States*, April 18, 2005.

inversely proportional to the square of the distance to each -- hence the parallel with Newton's law of gravitation.

By using these models to analyze Iowa's current casino revenues (as of Calendar 2004), I estimate that the average resident of Iowa who lives close to a casino spends roughly $650 per year on slot machines and $81 on table games, for a combined total of $731.[2] This is slightly above average for the Midwest, but not as high as the major markets of the South (Mississippi and Louisiana, at $935) or East (New Jersey plus Delaware, at $836). The rate of spending in Iowa is very comparable to that of the residents of Southern New England ($779) and Colorado ($719).

Again, these figures have been adjusted for distance. Because spending declines with distance, there are substantial areas of Iowa, not currently close to any casino, whose residents spend far less. If casinos were brought close to *all* the residents of Iowa ("a casino in every county"), I estimate that the total gaming revenues of Iowa's taxable casinos would reach roughly $2 billion.[3] At just over $1 billion, the revenues of Iowa's existing (non-Native American) casinos are currently running at approximately 53% of this benchmark. My previous report indicated that the most promising areas for expansion were Cedar Rapids and Waterloo. After

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[2] The figure of $731 is not directly comparable to the $659 estimated in my previous report. Based upon additional data and analyses of other markets, the models incorporate "tighter" distance factors, so the adjustments they make with respect to "close" are more stringent than before. Based on growth in total revenues, actual per capita spending on casino gaming in Iowa has risen roughly five percent since FY2003.

[3] My previous report estimated the potential "casino in every county" market at $1.82 billion. The increase here is due in part to general inflation (though low) since mid-2003 and in part to the "tighter" distance factors mentioned above. By bringing (more) casinos closer to more people, customers' spending will rise to a greater degree than I estimated in 2003. A related consequence is that my projections, as described below, are somewhat higher than those of my previous report.

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these major metropolitan areas, however, the rest of the potential gaming win is spread very thinly across the outlying areas of Iowa.

I then used the gravity models to develop projections for the proposed new casino facilities. I have updated their demographic data to 2004, based the distance calculations on (estimated) road mileages rather than previously as the crow flies, and updated all statistics for existing casinos regarding numbers of tables, numbers of slot machines and annual win for 2004. I have incorporated data developed in connection with my analysis of South Dakota last year, and in tuning the models have added new data on Indian gaming in Minnesota and other states. I have paid particular attention to the casinos in Minnesota as these provide the most serious competition to the new facilities proposed for Northern Iowa.

After updating the models, I tested them by assessing their projections for the impacts of the re-opening of the Tama casino at the beginning of 2004. In my opinion, the models' projections reflect actual events very well. In addition, the table-game model projects that the 33 new table games at Prairie Meadows should obtain annual revenues of $16 million. Through the first three months of operation, their revenues have been running at an annual rate of about $18 million. I therefore believe these models to be reasonably robust and reliable.

All of my projections are presented in 2004 dollars, and assume that the new casinos had been open for all of Calendar 2004. I have assumed that the expansions to existing casinos now under construction at Dubuque and approved for Prairie Meadows and Bluffs Run are completed. I have assumed no significant additions or enhancements to the other casinos in Iowa, including in particular its Native American casinos. I have assumed, moreover, that each of the new casinos is essentially average in relation to the existing facilities in Iowa in terms of "micro" access (ingress and egress); parking facilities; amenities such as hotels, restaurants, and events

centers; management; and marketing. These characteristics can have substantial impacts on performance, as indicated, for example, by the very different levels of win/unit achieved by Rhythm City and the Isle of Capri/Bettendorf. For my baseline projections, however, I have assumed that all the new facilities are essentially "plain vanilla" in terms of attractiveness and performance.

I have made three sets of projections, each under two scenarios. The three sets of projections are:

A. Assuming, as an abstraction, that all the new casinos are exactly the same size, with 600 slot machines and 20 table games. While not actually the case, these projections indicate the variations among the different facilities arising solely from their locations and the distribution of the population surrounding them.

B. Baseline projections using the actual sizes proposed for each new facility. According to the gravity models, size does matter (more in some locations than others).

C. Similar projections under slightly more aggressive assumptions regarding attractive-ness and the resulting spending per adult in each area. These more liberal projections are not ceilings (hence, I do not label them "upside"), but rather reflect performance similar to the top third of the existing facilities in Iowa.

Within each set, I present projections under two scenarios: first, assuming that each facility is the *only* one licensed, and second, assuming that all of the applicant counties obtain a casino. Under these more competitive conditions, projected gaming revenues are lower -- but generally not much lower, as the models indicate that there are likely to be only modest competitive impacts among the new facilities (assuming no more than one new facility per

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county). Similarly, adverse impacts on the existing facilities in Iowa are also projected to be modest.

The resulting projections are summarized in Exhibit A. (Details are provided in Exhibits 4-7 to 4-17 of the main body of this report). The baseline projections are reiterated in Exhibit B, with additional columns indicating the aggregate adverse impacts on all the other (State-licensed) casinos in Iowa and the resulting *net* gains in total revenues due to each.

My baseline projections are generally 20-25% higher than those of my 2003 report. This is due, as described in the footnotes above, in small part to general inflation since mid-2003 but in much larger part to the tighter distance factors now employed by the gravity models. Bringing casinos closer to centers of population (even small ones) results in greater gains than I projected in 2003.

In addition to this general trend, I would make the following observations:

1.   Aside from slight variations due to different numbers of table games and slot machines, the models indicate no significant differences among the three applicants for Waterloo. While the characteristics of the different sites may indeed be significant on a micro scale (including ease of access, parking, and facility configurations), the roughly five miles that separate each of the locations do not result in any material difference in the distribution of the surrounding population. The models' projections for facility revenues are therefore nearly identical.

2. The projections for the Washington County facility are somewhat lower than for the potential Cedar Rapids casino examined in 2003 due to Washington County's moderate distance from the population centers of Iowa City and Cedar Rapids.

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3. Projected revenues for the Franklin County facility are enhanced by its large size (roughly twice that assumed in 2003), reflected in the models as greater attractiveness; and

4. The "With All Counties" projections for the proposed facilities in Northern Iowa (Webster, Franklin, Worth and Palo Alto Counties) show greater reductions from the corresponding "Only Licensee" figures due to the sparse populations among which they would compete. In contrast, the proposed Black Hawk, Washington and Wapello County facilities enjoy markets in which the population is concentrated closer to them, so their performance is less sensitive to competition outside their core markets.

Finally, due to the size of the Waterloo market, if consideration is given to licensing more than one facility there, I have also examined scenarios in which two licenses are granted in Black Hawk County. In this event, total gaming revenues for that market would rise to $115-$120 million, versus $90-$100 million projected for a single facility. If the construction costs and capital structures of the applicants were appropriate, two facilities could potentially be supported in the Waterloo market. I infer from the applications, however, that each applicant has assumed it would have the *only* casino in Black Hawk County, so that granting multiple licenses there would likely require substantial revisions in the proposed casino structures and financial plans.

My analyses and projections are based upon the assumptions described herein. Some of these assumptions will inevitably not materialize, and unanticipated events and circumstances will occur. The actual results will therefore vary from my projections, and such variations may be material.

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Exhibit A: Full Range of Projections / Gross Annual Gaming Revenues ($000)

(Corresponding exhibit numbers in parentheses)

	All At "Standard Size"		As Proposed / Baseline Projections		As Proposed / Liberal Projections	
	If Sole Licensee	With All Counties	If Sole Licensee	With All Counties	If Sole Licensee	With All Counties
Black Hawk / NCC	$84,698 4-7A	$82,656 4-17A1	$93,242 4-7B	$90,793 4-17B1	$97,201 4-7C	$92,235 4-17C1
Black Hawk / CVG	$85,606 4-8A	$83,706 4-17A2	$94,830 4-8B	$92,606 4-17B2	$98,910 4-8C	$94,157 4-17C2
Black Hawk / IOC	$85,536 4-9A	$83,168 4-17A3	$96,752 4-9B	$93,531 4-17B3	$101,094 4-9C	$95,129 4-17C3
Washington County	$64,992 4-10A	$60,743 4-17A2	$81,983 4-10B	$76,827 4-17B3	$98,232 4-10C	$91,077 4-17C3
Wapello County	$34,978 4-11A	$34,065 4-17A2	$31,235 4-11B	$28,590 4-17B3	$37,167 4-11C	$33,486 4-17C3
Webster County	$34,844 4-12A	$30,154 4-17A2	$35,624 4-12B	$30,179 4-17B3	$40,900 4-12C	$34,989 4-17C3
Franklin County	$28,831 4-13A	$21,013 4-17A2	$37,409 4-13B	$31,940 4-17B3	$47,063 4-13C	$39,873 4-17C3
Worth County	$35,403 4-14A	$27,904 4-17A2	$34,198 4-14B	$23,984 4-17B3	$38,647 4-14C	$28,295 4-17C3
Palo Alto / NWI	$24,159 4-15A	$18,838 4-17A2	$23,418 4-15B	$16,624 4-17B3	$26,135 4-15C	$19,666 4-17C3
Palo Alto / Wild Rose	$24,100 4-16A	$18,691 4-17A4	$22,311 4-16B	$14,001 4-17B4	$24,183 4-16C	$16,205 4-17C4

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Exhibit B: Summary of Baseline Projections and Impacts ($000)
(Corresponding exhibit numbers in parentheses)

	Gross Gaming Revenues At Facility		Net of Impacts on Others (if Sole Licensee)	
	If Sole Licensee	**With All Counties**	**Adverse Impacts**	**Net Gain in Revs**
Black Hawk / NCC	$93,242 4-7B	$90,793 4-17B1	($11,186) 4-7B	$82,055 4-7B
Black Hawk / CVG	$94,830 4-8B	$92,606 4-17B2	($11,314) 4-8B	$83,516 4-8B
Black Hawk / IOC	$96,752 4-9B	$93,531 4-17B3	($12,131) 4-9B	$84,621 4-9B
Washington County	$81,983 4-10B	$76,827 4-17B3	($19,322) 4-10B	$62,661 4-10B
Wapello County	$31,235 4-11B	$28,590 4-17B3	($5,347) 4-11B	$25,888 4-11B
Webster County	$35,624 4-12B	$30,179 4-17B3	($5,369) 4-12B	$30,255 4-12B
Franklin County	$37,409 4-13B	$31,940 4-17B3	($7,077) 4-13B	$30,332 4-13B
Worth County	$34,198 4-14B	$23,984 4-17B3	($1,850) 4-14B	$32,348 4-14B
Palo Alto / NWI	$23,418 4-15B	$16,624 4-17B3	($1,780) 4-15B	$21,638 4-15B
Palo Alto / Wild Rose	$22,311 4-16B	$14,001 4-17B4	($1,460) 4-16B	$20,850 4-16B

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Update

1. Introduction

The Iowa Racing and Gaming Commission is currently reviewing ten applications for new riverboat gaming facilities in the State of Iowa. To assist in this review, the Commission has retained Cummings Associates to update my report of October 7, 2003. This includes analysis of the current markets for casino gaming in Iowa, comparisons with the most relevant markets elsewhere, and projections for the likely revenues and impacts of the proposed new gaming facilities. This report describes my methodology and the resulting projections for gaming revenues and impacts. A companion report assesses the "density" of casinos, slot machines and table games in Iowa, and the levels of service they provide, in comparison with those of other states.

The author of this report, Will Cummings, has extensive experience in this area. A partial bibliography of my own and others' work in this field is attached. In addition to my study in 2003, I first conducted a similar statewide analysis for the Commission in 1995, and have conducted a variety of local analyses in Iowa since then. I have also been engaged for such studies in a wide range of other states, the Commonwealth of Puerto Rico, and the Province of Alberta, Canada.

To illustrate the potential precision of my approach, in July, 1999, I projected $47 million in total annual gaming revenues ("win")[4] for the soon-to-open Lakeside Casino Resort in Clarke County, Iowa, the most recent license granted. Over its first full year of operation, FY2001, its

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[4] *Central and Southwest Iowa Casino Market Analysis: Working Papers*, July 30, 1999.

actual casino win was $46.3 million. Since then, Lakeside's win has grown to $58.7 million (Calendar 2004), though it is now stepping down due to the introduction of table games at Prairie Meadows.

Of course, not all projections can be so accurate. Assumptions inevitably fail to materialize, and unanticipated events and circumstances occur. I believe, however, that the methodology that I have used is the most appropriate and accurate available to address questions related to gaming revenues and to develop projections for the future.

As in 2003, my analyses and projections are based upon the application of detailed "gravity models." These relate actual gaming facility revenues (or for proposed facilities, projected gaming revenues) to the demographics of the areas surrounding them. These gravity models are based upon a well-established principle of economics called "Reilly's Law." This describes how consumers tend to visit alternative retail centers (roughly) in direct proportion to the size of each center (such as casino square footage, or numbers of slot machines and table games) and *inversely* proportional to the square of the distance to each -- hence the parallel with Newton's law of gravitation.

To set the stage, Exhibit 1-1 presents a map of Iowa, with each county marked in outline. Iowa's existing gaming facilities are indicated by dark stars; the figures below each represent the "size" of each casino in terms of its numbers of slot machines and table games. In markets with multiple facilities, such as Dubuque, the Quad Cities, and Council Bluffs/Omaha, the numbers have been aggregated into one total for each market. (I have, however, kept separate the figures for the riverboat casino on the Illinois side of the Quad Cities, in parentheses. Expansions of the casinos at Dubuque, Council Bluffs, and Prairie Meadows that have been approved by the Commission are also indicated separately in parentheses.) The open stars indicate the locations of the new casinos that have been proposed by the applicants now before the Commission.

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Exhibit 1-2 presents the same map, but this time with the "size" of each gaming facility (or group of facilities) presented in terms of its total annual gaming win, for table games and slots combined. The figures for the Native American gaming facilities are my estimates (not shown); all other figures are from the Commission's monthly reports for 2004.

It is no accident that in both Exhibit 1-1 and 1-2 the largest casinos, by either measure, are located in the areas with the greatest populations (see Exhibit 1-3).[5] The relationships among the location of each casino, the numbers of people living at different distances from each, and their spending at each are represented by two gravity models, one for slot machines and one for table games. Section 2 presents an overview of this methodology.

Section 3 applies these gravity models to analyze the existing markets for casino gaming in the State of Iowa, and compares them with those elsewhere in the Midwest and around the country. Finally, Section 4 describes the use of these models to develop projections for the likely revenues of the proposed gaming facilities under several scenarios for the future, and the associated impacts that these new facilities would likely have on the existing casinos of Iowa.

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[5] Note, however, that the boundaries of the effective "market catchment areas" for each casino are actually far from the crisp, straight lines delineated on this map. In reality, they are fuzzy and irregular. In addition, casino customers do sometimes visit more distant facilities, particularly if they are larger, more varied, and offer more amenities. As described below, the gravity models reflects these realities.

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2. Methodology

The gravity-model approach has been refined over the years as it has been used to assess the performance of a variety of gaming markets and individual facilities, both existing and proposed. These models focus on the demographics of the areas surrounding each facility, in particular the number of adults residing at various distances, and the ratio of actual revenues obtained (at existing facilities) to such adult populations. To make a projection, in turn, one assumes that the population surrounding a new facility will behave in a fashion similar to that at the most comparable existing facilities.

To illustrate the relationships among revenues, population, and distance in existing markets, Exhibit 2-1 presents a chart comparing rates of visitation versus distance for the casinos of Mississippi, based upon statewide patron-survey data. There is clearly a relationship between patronage and distance; the further away from a casino you get, the lower the number of visits. Fewer customers are willing to travel longer distances, and when they do, they tend to visit less often. (Offsetting this slightly, when they *do* visit, they typically spend more on each occasion than nearby customers who visit more frequently – but still spend less over the course of a year.) In addition, as you get further away from the casinos of Mississippi, you (generally) get closer to competing casinos in other states, further reducing the number of your visits to Mississippi.

Because the rates of visitation appear to decline so dramatically as distance increases, and because the scale is so large when looking at statewide data such as these from Mississippi, it is useful to transform this data by taking logarithms ("log-transforming the data," as economists say). Exhibit 2-2 presents the Mississippi data in such fashion, and it begins to look more regular. When we exclude the most distant data (beyond 250 miles, where competition, rather

than distance, usually becomes the dominant factor), the data actually begin to look quite nice (Exhibit 2-3).

I have analyzed such data from a wide variety of markets, and similar data from players clubs at a number of gaming facilities. Based on this data, I estimate that over a reasonable range of distances the average "elasticity" of spending with respect to distance is roughly -0.7, that is, consumers' total spending declines somewhat less than in direct proportion to the distance to be traveled.[6] When it comes to visiting different facilities, however (if all else is not far from equal), customers *overwhelmingly* prefer the closest. It appears that in this respect casino gaming behaves like many other consumer markets, in which the relative "attraction" of each outlet is roughly inversely proportional to the distance *squared*.[7]

In contrast to some other types of analysis, this view of the world does not draw sharp boundaries between markets. Casino customers sometimes do visit more distant facilities, particularly if they are larger, more varied, and offer more amenities. (Mississippi, for example, draws *some* customers from Missouri, Indiana, and Texas, all of whom pass up casinos located closer to them, and similarly, Iowa casinos draw *some* customers from a wide variety of

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[6] This is a relatively "long-distance" attraction; if you double the distance, revenues decline by about 38%. For comparison, race tracks generally exhibit distance coefficients of about -1 to -1.2: if you double the distance, visitation declines by 50% or more.

I would note that while the -0.7 coefficient for this distance relationship remains unchanged from my 2003 report, I have recalculated distances in these models (and in those for the comparison markets) to reflect (approximate) road mileage rather than distance as the crow flies. To better reflect conditions in the real world, I have also depressed most market shares at distances greater than 150 miles (by road) versus 200 miles (as the crow flies) in 2003. (Adjacent hotels and/or busing programs, of course, help to draw better from such greater distances.) These changes have "tightened up" the distance factors in my gravity models, i.e., enhanced the adverse effects of greater distance. As described below, this has generally led to higher projections because bringing new casinos closer to centers of population (even small ones) has more beneficial impacts than estimated in 2003.

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surrounding states.) Other things being equal, however, consumers are *much* more likely to visit the nearest facility. The inverse-square-law representation of the gravity models appears to reflect their behavior very well.[8]

The "mass" that attracts customers is typically represented in the gravity models by the "size" of the casino, described either in terms of its square footage or numbers of slot machines and table game/positions. (In other applications, the square footage of each shopping mall, or the total population of each "trade area" is used.) Larger facilities attract more people, not just from size in and of itself, but because they are more diverse, generally (though not always) offer a greater variety and higher level of amenities, and usually (though not always) have greater resources to spend on marketing and promotion. In addition, when there are multiple facilities within a market, or in closely adjoining markets, customers benefit from the competition between these facilities for their business. In the real world, "more" is not necessarily better, but it so often is that the data indicate quite clearly that it is a major factor, second only to distance, in consumers' choice among alternative facilities.

Finally, the models as I have refined them use additional, but much less critical, parameters to fine-tune their estimates for customers' spending: per capita income (higher is not necessarily better, but lower-income areas appear to spend less); urban/rural mix (the residents of urban areas tend to spend more than those of rural areas); and the relative "reach" and/or

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[7] Hence, the name is sometimes lengthened to "Reilly's Law of Retail Gravitation," based upon its mathematical similarity to Newton's Law of Gravitation (for which the "distance factor" would be -2.0: if you double the distance, the attraction declines by a factor of 2^2, or four).

[8] Though not perfectly. A "pure" gravity model tends to overestimate the market share that a large, distant casino will draw from a small casino that serves an outlying market. In 2003, this resulted in underestimates for both the performance and adverse impacts of potential new casinos. My current models correct for this tendency. As with the tighter distance factors noted above, this tends to

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accessibility of alternative casinos, not always captured perfectly in the gravity models. Davenport and Bettendorf, for example, are easier to get to than Clinton or Burlington and Fort Madison. West Des Moines is much closer to Prairie Meadows than to Lakeside in terms of mileage, but still appears to generate substantial business for Lakeside because it is an easy drive down the Interstate highway. And casinos in "resort" areas, such as Marquette and the Wisconsin Dells, draw from broader geographic areas than those in more humdrum locales. Using travel time rather than raw mileage as the distance variable would likely enhance the models' fit, but not eliminate all the quirks of "reach" and accessibility as significant factors.

(Because the distance relationships, in particular, as well as several others in these models are highly nonlinear, standard statistical estimation procedures are not very useful to assess or refine them. There remains a considerable range of variation among markets not explained by any of the variables. Markets differ in terms of the quality and accessibility of their facilities, their "reach," and the intrinsic "propensity to gamble" of their residents. The following analyses and projections assume that these factors are roughly equally responsible for the various differences among markets not explained by the more readily-quantifiable variables.)

To illustrate the application of all these elements, Exhibit 2-4 presents as an example the estimated per capita spending of the residents of each county in Iowa on the slot machines at Prairie Meadows (chosen simply because of its central location -- similar estimates are calculated for each gaming facility in Iowa and in neighboring states). In Polk County, where the track is located, the average adult spends $445 per year on Prairie Meadows's slots. In adjoining counties, the estimated rates of spending are much lower, ranging from $160 in Warren County to

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increase the projected revenues for most new casinos, and in addition, increases their projected impacts on existing facilities as well.

the south down to $32 in Marshall County to the northeast -- depressed due to competition from the Mesquaki casino immediately to the east at Tama. At greater distances, rates of spending decline even further. And as one moves closer to competing facilities in the surrounding areas, per capita spending at Prairie Meadows declines even more sharply. Note, for example, how the rates of spending dip around Tama, Clarke County (Lakeside), Dubuque, Clinton, the Quad Cities and Council Bluffs. (Exhibit 2-5 depicts the resulting total dollar spending at Prairie Meadows, calculated by multiplying the per capita spending figure by the actual adult population of each county, from Exhibit 3-1 below).

This pattern of decline with distance, along with the relationships among all the other variables described above, has been applied to estimate the current rates of spending at all the facilities of Iowa as described in Section 3.

3. Analysis of Current Markets

Per capita spending on gaming clearly declines with distance. But how do we estimate what the rate of spending is at any given distance?

This can be done by using these models to adjust *population* for distance, rather than spending. I have in this way calculated the "distance-adjusted" adult population surrounding each gaming facility (or appropriate group of facilities) in each market of Iowa, and in most of the other markets of the Midwest and around the country. This has been done by weighting the adults who live close to a facility at (the appropriately) higher rates than those who live more distantly. Dividing the actual total revenues, or spending, in each existing market by these population figures results in ratios measuring revenue per "distance-adjusted" adult.[9]

Exhibits 3-1 through 3-5 describe the application of this procedure to Iowa. Exhibit 3-1 presents a map of the counties of Iowa with their actual adult populations indicated (rounded to the nearest thousand). Exhibit 3-2 presents the corresponding map showing these populations adjusted for distance from the nearest slot facility.[10] In those counties that actually have casinos the two figures are relatively close. In more distant counties, however, the distance-adjusted populations decline dramatically.

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[9]   Note that these figures also incorporate the effects of per capita income, urban/rural factors, and casinos' relative "reach." In the rest of this report, "distance-adjusted" therefore should be taken to mean "adjusted for distance and other factors, too."

[10]   Note that the distances from facilities that offer table games may be different, so the distance-adjusted populations with respect to table games can and do differ. The table populations will also be distributed differently due to variations in the relative numbers of tables versus slot machines at alternative facilities. If one facility has 20 tables and 1,200 slots, for example, while another has 50 tables and 600 slots, the relative "mass" effect favors the former with respect to slots, but the latter with respect to tables.

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Exhibit 3-3 repeats Exhibit 1-3, depicting approximate market catchment areas (again, the boundaries indicated between markets are really not so straight and clear) and now the (slot-) distance-adjusted adult populations of each market. These are in most cases significantly less than the raw, unadjusted adult populations, again a reflection of the fact that more distant people are less active in spending.

Exhibit 3-4 then calculates the average rate of spending per distance-adjusted adult at the slot machines of the various facilities in Iowa.[11] These figures lie in the range of $573 to $729 per adult, with the average for the State as a whole at $650. These figures can be interpreted as the amount the average adult within each market *who has convenient access to a gaming facility*[12] spends on slot machines each year. At greater distances, the average adult spends less. (Again, to calculate distance-adjusted population we scaled back the number of people to reflect the impacts of distance. In the real world, it is their rate of spending that declines.)

Exhibit 3-5A presents the corresponding analysis for table games. Note that the distance-adjusted populations here differ from those of Exhibit 3-4, the slot analysis, most prominently because Prairie Meadows did not offer table games until December. (In addition, as footnoted above, the different facilities have different "masses" with respect to table games than with respect to slots.) Note also that the estimated rates of spending are much lower for table games than for slots -- in most markets, table games currently account for only 10-15% of total casino

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[11] I have developed estimates based on analyses of other markets for the Native American casinos at Tama, Sloan (WinnaVegas), and Onawa. In the course of refining the gravity models, I also updated their demographic data to (estimates for) 2004 and updated their statistics for existing casinos with regard to numbers of tables, numbers of slot machines and annual win. I incorporated data developed in connection with my analysis of South Dakota last year, and in "tuning" the models added new data on Indian gaming in Minnesota and other states. I paid particular attention to the casinos in Minnesota as these provide the most serious competition to the proposed new facilities in Northern Iowa.

[12] "Convenient access" is quantified in the gravity models as "within ten miles."

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revenues. (They are, however, undergoing something of a renaissance with the current wave of interest in poker fueled by reality- and celebrity-based TV.) In Iowa, the average adult who has convenient access to them spends $81 per year on table games.

Exhibit 3-5B presents estimates for total casino spending per distance-adjusted adult, defined (despite some mixing of apples and oranges in terms of the population bases) as slot spending per adult plus table spending per adult. (The awkward exhibit number is due to the fact that it is new. I have tried as much as possible to maintain the same exhibit numbers here as in my 2003 report, so that one can compare, for example Exhibit X in this report with the same Exhibit X in the older report.) The average resident of Iowa who lived within ten miles of a casino spent $731 at it in 2004 on slot machines and table games combined.[13]

Exhibit 3-6 compares the figures for total spending per adult (slots and tables combined) for Iowa with those of other markets in the Midwest (center column) and more broadly across the country (left-hand column). Note that Iowa's markets generally rank among the upper middle class for the Midwest, but below those for major markets in the East and South. Mississippi's casinos (combined here with Louisiana's because their markets overlap) attract the highest rates of spending. (As footnoted in the exhibit, however, Nevada markets are even higher, somewhere off this scale.) Despite low personal incomes in Mississippi, that state has no statutory limits on the numbers of casinos or gaming devices, they are correspondingly highly competitive, and there is no competition from state lotteries across most of their market (and, for what it's worth, modest pari-mutuel competition, too). Slightly lower, the Connecticut and Colorado casinos, while

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[13] The figure of $731 is not directly comparable to the $659 estimated in my previous report. As described above, the gravity models now incorporate "tighter" distance factors than before. Based on growth in total revenues, actual per capita spending on casino gaming in Iowa has risen roughly five percent since FY2003.

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restricted to relatively remote locations (and in Colorado, to $5 bets), are also fairly competitive. As we move down the list in the Midwest, however, we generally find less competitive conditions and markets with lower quality and/or less accessible casinos. Throughout the middle column there are also a variety of markets in which the number of facilities and/or gaming devices is nowhere near sufficient to meet the demand that exists for them. As a result of these "capacity-" and "access-constrained" conditions, spending per (distance-adjusted) adult is relatively low. (At the same time, however, spending *per machine* is typically [but not always] high, as people are figuratively lined up at the machines to play them.)[14]

In addition to spending time and money at the gaming facilities of Iowa, its residents also spend money at casinos in other states (generally to a minor extent except in some border areas). Including such "leakage," Exhibit 3-7 depicts current per capita spending on casino gaming for each county in Iowa. (Spending in Nevada, the Caribbean, and other destination resorts is not included, but would not likely be significant.) Total dollar spending (in millions) is indicated in Exhibit 3-8. Iowa facilities' share of that spending is indicated in Exhibit 3-9. Note how the residents of counties that have casinos typically spend 97%+ within Iowa; most of the other counties in the southern two-thirds of Iowa spend 70%+, but the residents of northernmost Iowa currently spend less than half their gaming budgets within the state. The casinos at Flandreau, South Dakota; Morton, Minnesota (Jackpot Junction); and especially Mystic Lake and Red Wing, Minnesota (which have more than 7,000 slots between them) draw substantial volumes of business from Northern Iowa. New casinos in this area, such as those proposed for Worth and

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[14] Markets can effectively be capacity-constrained even when win/day/machine is not at astronomical levels. If the major issues are accessibility, attractiveness, and/or effective promotion, players may indeed not be lined up at the machines as they are in other jurisdictions where the unsatisfied demand is far more obvious.

Palo Alto Counties, would keep more of this money within the state, but would also face serious competition from their larger competitors to the north.

I developed similar estimates for all the surrounding states, not only to assess their baseline rates of spending for comparison above but also to estimate their contributions to Iowa's casino revenues. (The most significant such source is Nebraska, whose largest metropolitan areas are immediately adjacent to Iowa and do not have casinos of their own.) Summing across all the counties of Iowa and neighboring states, the models' estimated contributions of Iowans versus out-of-state visitors to each of the casino markets of Iowa are indicated in Exhibit 3-10. Overall, more than half Iowa's of casino revenues come from the residents of other states, fueled primarily by Omaha, Moline and Rock Island.

Having analyzed the current patterns of casino spending in Iowa and its neighboring states, the updated gravity models were then used to develop projections for the proposed new casinos as described in the next section.

4. Projections

Projected Versus Actual Results With Tama

Before using the gravity models to develop projections with respect to new facilities, I tested them by comparing their projections for what has happened in Iowa since the Tama casino reopened at the beginning of 2004 (just as I tested them in 2003 versus the actual results when Tama closed). To do this, I simply set the number of slots and table games at Tama to zero, thereby eliminating any "mass" to attract consumer spending. Exhibit 4-1 summarizes the resulting projections for each market "without" Tama, in dollar terms at an annual rate, and in percentage terms in comparison to actual casino revenues with Tama. The greatest reductions were projected for Prairie Meadows, Lakeside, and Marquette, moderate reductions for Dubuque and Catfish Bend, and lower impacts elsewhere.

As indicated in Exhibit 4-2, this is in fact what has actually occurred. (Exhibit 4-2A compares slot revenues with model predictions, Exhibit 4-2B table revenues, and Exhibit 4-2C total casino revenues.) In each of these exhibits, the top portion presents growth in slot (or table, or total) win for each quarter from 2004 Q1 to 2005 Q1 versus the same quarter in the previous year. In the first quarters of each year, Tama was open. In the third and fourth quarters of 2003, Tama was closed, so the comparison for 2004 versus 2003 is "with Tama" versus "without." (I have omitted 2004 Q2 because Tama closed in the middle of 2003 Q2, so it is not a clear-cut comparison.) With few exceptions, while individual quarters bounced around, the average growth rate at each facility was lower for the quarters with Tama returning versus those in which the competition from Tama remained the same.

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The bottom portions of each exhibit compare the actual results for each casino, as measured by the difference in growth rates calculated above, with the impacts projected by the gravity models. In most cases these are fairly close. The most significant differences are in Northeastern Iowa, where the impacts on Dubuque appeared greater than those on Marquette, and in Central Iowa, where the impacts on Prairie Meadows appeared greater than those on Lakeside (though Lakeside's table win suffered nearly as much as predicted, its slot revenues held up better). Local shifts in market share could be responsible for most of these differences. On an aggregate basis, the overall statewide impact, at -4.2%, matches the models' prediction exactly. Most interesting to me, the models' perhaps counterintuitive prediction that the impacts of Tama would be greater on Catfish Bend than on the Quad Cities was borne out (people from Ottumwa?) In my opinion, the models' projections therefore reflect actual events quite well.

Projections for a "Fully-Casinoed" Iowa

As in my previous analyses in 1995 and 2003, I have developed a projection for an extreme case of casino expansion in Iowa: a casino in every county. Although not likely economically feasible (unless the State lowers its tax rates on gaming to purely nominal levels), this scenario estimates something close to the "maximum" casino revenues possible in Iowa.

To illustrate the basis for this projection, Exhibit 4-3 presents a map of Iowa that depicts the "distance factors" currently at work in each county (as estimated, of course, by my gravity models. These resulted in the estimated dollar volumes of spending that were depicted in Exhibit 3-8 above.)

If there were a casino convenient to all the residents of each county, these distance factors would all rise to 100%. (For some counties, this may in fact require more than one casino.) I

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then assumed that the residents of each county would spend at rates similar to those currently hosting casinos, averaging $731 per year. The resulting dollar volumes (in millions) are indicated in Exhibit 4-4A. The corresponding *increases* in dollar spending are shown in Exhibit 4-4B (again, in millions).

This exhibit depicts graphically the areas of greatest potential for new casino facilities. These are the same as in my previous studies: Linn County (Cedar Rapids), neighboring Johnson County (Iowa City), and Black Hawk County (Waterloo). The projected increases in spending from the residents of these three counties alone are $77 million, $47 million, and $48 million, respectively. There is a cluster of counties around Des Moines from which more modest increases could be obtained, primarily because the closest table games were (as of 2004 as a whole) forty miles away. Prairie Meadows's new table games have already begun to capture approximately $10-$12 million of this potential (net of impacts on Lakeside and Tama.) The remaining centers of population provide potential increments in much smaller amounts, such as Cerro Gordo County (Mason City), a net gain of $18 million; Webster County (Fort Dodge), $15 million; and Wapello County (Ottumwa), $13 million.[15]

Exhibit 4-5 summarizes the models' calculations for Iowa as a whole under this scenario. In addition to the increases from the new casinos in every county, I have projected small increases from existing markets that do not currently produce the $731 per year benchmark, reductions in Iowans' visits to casinos in neighboring states, and modest increases in spending from out-of-state visitors to Iowa casinos. The resulting total statewide win is nearly $2.1

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[15] As indicated by the projections presented below, casinos in any of these locations would likely capture greater revenues than the amounts indicated here, more in fact than the amounts indicated as gross spending in Exhibit 4-4A. In addition to spending from the residents of the counties in which

billion.[16]   After allocating a portion of this to Iowa's existing Native American facilities, approximately $2 billion would be subject to taxation, an increase of roughly $940 million from Calendar 2004   At just over $1 billion, the revenues of Iowa's existing (non-Native) casinos are already running at approximately 53% of this benchmark.   After roughly $170 million from Cedar Rapids and Waterloo, however, the map in Exhibit 4-5 suggests that it will be difficult to obtain additional increases of any substantial size without a vast expansion of the number of casinos in Iowa.

Projections for the Proposed Facilities

I then used the updated gravity models to develop projections for the new casino facilities proposed by the ten applicants.   In order to provide a baseline for these projections, I first developed a projection for all the existing facilities of Iowa *without* any new casinos.   For this baseline, I assumed that the expansions to existing casinos now under construction at Dubuque, and approved for Prairie Meadows and Bluffs Run, are completed.   I assumed no significant additions or enhancements to the other casinos in Iowa, including in particular its Native American casinos.

These projections are presented in Exhibit 4-6.   The top portion of this exhibit (and all that follow) presents the projected revenues for any of the new casinos that are examined in each scenario; for this baseline, no new casinos are assumed.   The middle portion of this exhibit

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they would be located, they would also capture some spending from the residents of other counties nearby.

[16]   My previous report estimated the potential "casino in every county" market at $1.82 billion.   The increase here is due in part to general inflation (though low) since mid-2003 and in part to the "tighter" distance factors mentioned above.   By bringing (more) casinos closer to more people, customers' spending will rise to a greater degree than I estimated in 2003.   A related consequence is that my projections, as described below, are somewhat higher than those of my previous report.

compares projected casino revenues at each of the existing facilities with their actual revenues in Calendar 2004, and indicates the projected dollar impacts and percentage impacts of each scenario. In this baseline, casino revenues at Dubuque are projected to grow by $12.6 million due to Dubuque Greyhound Park and Casino's expansion from 600 to 1,000 slot machines; at Prairie Meadows by $32.6 million due to its addition of 65 table games (33 already in place) and 500 slot machines; at Council Bluffs by $3.4 million due to the addition of table games and 400 slot machines at Bluffs Run;[17] and at Sioux City due to the expansion Argosy completed there in September, 2004.

At all the other casinos in Iowa (as always, everything else remaining equal!), revenues are projected to decline, generally by modest amounts except at Lakeside, which is affected more seriously by Prairie Meadows's addition of table games.[18] In the aggregate, Iowa's overall casino revenues are projected to rise by $30.7 million due to these expansions.

I then developed a series of projections for the proposed new facilities. For most of these, I assumed that each of the new casinos would be essentially average in comparison to the existing facilities in Iowa in terms of "micro" access (ingress and egress); parking facilities; amenities such as hotels, restaurants, and events centers; management; and marketing. These characteristics can have substantial impacts on performance, as indicated, for example, by the very different levels of win/unit achieved by Rhythm City and the Isle of Capri/Bettendorf, which

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[17]   This perhaps surprisingly small increment at Council Bluffs indicates that most of the impacts of the expansion there will be on market share rather than on total market revenues.

[18]   In this connection, the table model projects that Prairie Meadows's 33 table games already open should obtain annual revenues of $16 million. Through the first three months of operation, their revenues have been running at an annual rate of about $18 million. Impacts on Lakeside's table games are projected at 33%; through March, however, Lakeside's table revenues were down 44% from the previous year. Lakeside's tables, however, were down substantially in October and November of 2004, before Prairie Meadows opened its table games, so the actual impact is in my opinion not yet entirely clear.

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are located only about a mile apart in the Quad Cities. For my baseline projections, however, I have assumed that all the new facilities are essentially "plain vanilla" in terms of attractiveness and performance.

I have made three sets of projections, each under two scenarios. The three sets of projections include:

A. Assuming, as an abstraction, that all the new casinos are exactly the same size, with 600 slot machines and 20 table games. While not actually the case, these projections indicate the variations among the different facilities arising solely from their locations and the distribution of the population surrounding them.

B. Baseline projections using the actual sizes proposed for each new facility. According to the gravity models, size does matter (more in some locations than others).

C. Similar projections under slightly more aggressive assumptions regarding attractive-ness and the resulting spending per adult in each area. These more liberal projections are not ceilings for performance (hence, I do not label them "upside"), but rather reflect performance similar to the top third of the existing facilities in Iowa.

Within each set, I present projections under two scenarios: first, assuming that each facility is the *only* one licensed, and second, assuming that each of the applicant counties obtains one casino. Under these more competitive conditions, projected gaming revenues are lower -- but generally not much lower, as the models indicate that there are likely to be only modest competitive impacts among the new facilities (again, assuming no more than one new facility per county). Similarly, adverse impacts on the existing facilities in Iowa are also projected to be modest.

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Exhibits 4-7 to 4-18 present detailed projections as follows. Within each set, the "A" exhibits present the "all-the-same-size" projections, the "B" exhibits present the projections for each facility (and its impacts) as proposed under the baseline assumptions, and the "C" exhibits present the projections (with facilities sized as proposed) under more liberal assumptions.

4-7A, B, C:	Black Hawk / National Cattle Congress Facility and Impacts (solo)
4-8A, B, C:	Black Hawk / Cedar Valley Grants Facility and Impacts (solo)
4-9A, B, C:	Black Hawk / Isle of Capri Facility and Impacts (solo)
4-10A, B, C:	Washington County Facility and Impacts (solo)
4-11A, B, C:	Wapello County Facility and Impacts (solo)
4-12A, B, C:	Webster County Facility and Impacts (solo)
4-13A, B, C:	Franklin County Facility and Impacts (solo)
4-14A, B, C:	Worth County Facility and Impacts (solo)
4-15A, B, C:	Palo Alto / Northwest Iowa Gaming Facility and Impacts (solo)
4-16A, B, C:	Palo Alto / Wild Rose Facility and Impacts (solo)
4-17A1 to C4:	Projections for One in Each County
4-18A, B, C:	Projections for Combinations of Facilities in Black Hawk County[19]

Exhibit 4-19 summarizes the full range of projections for top-line revenues at each of the new facilities. The baseline projections are reiterated in Exhibit 4-20, with additional columns indicating the aggregate adverse impacts on all the other (State-licensed) casinos in Iowa and the resulting *net* gains in total revenues due to each.

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[19] The pattern is slightly different for the Black Hawk County combinations: all are baseline/as proposed. Exhibit 4-18A presents the combination of National Cattle Congress plus Cedar Valley Grants; Exhibit 4-18B the combination of National Cattle Congress plus Isle of Capri; and Exhibit 4-18C the combination of Cedar Valley Grants plus Isle of Capri.

My baseline projections are generally 20-25% higher than those of my 2003 report. This is due, as described above, in small part to general inflation since mid-2003 but in much larger part to the tighter distance factors now employed by the gravity models. Bringing casinos closer to centers of population (even small ones) results in greater gains than I projected in 2003.

In addition to this general trend, I would make the following observations:

1. Aside from slight variations due to different numbers of table games and slot machines, the models indicate no significant differences among the three applicants for Waterloo. While the characteristics of the different sites may indeed be significant on a micro scale (including ease of access, parking, and facility configurations), the roughly five miles that separate each of the locations do not result in any material difference in the distribution of the surrounding population. The models' projections for facility revenues are therefore nearly identical.

2. The projections for the Washington County facility are somewhat lower than for the potential Cedar Rapids casino examined in 2003 due to Washington County's moderate distance from the population centers of Iowa City and Cedar Rapids.

3. The Franklin County facility's projected revenues are enhanced by its large size (roughly twice that assumed in 2003), which is reflected in the models as greater attractiveness; and

4. The "With All Counties" projections for the facilities proposed in Northern Iowa (Webster, Franklin, Worth and Palo Alto Counties) show greater reductions from the corresponding "Only Licensee" figures due to the sparse populations among which they would compete. In contrast, the Black Hawk, Washington and Wapello County facilities enjoy markets

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in which the population is concentrated closer to them, so their performance is less sensitive to competition outside their core markets.

Finally, due to the size of the Waterloo market, if consideration is given to licensing more than one facility there, I have also examined scenarios in which two licenses are granted in Black Hawk County (Exhibits 4-18A, B and C). If this were to be done, total gaming revenues for that market would rise to $115-$120 million, versus $90-$100 million projected for a single facility. If the construction costs and capital structures of the applicants were appropriate, two facilities could potentially be supported there. I infer from the applications, however, that each applicant has assumed it would have the *only* casino in Black Hawk County, so that granting multiple licenses there would likely require substantial revisions in the proposed casino structures and financial plans.

My analyses and projections are based upon the assumptions described herein. Some of these assumptions will inevitably not materialize, and unanticipated events and circumstances will occur. The actual results will therefore vary from my projections, and such variations may be material.

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